

LOAD RUNNER

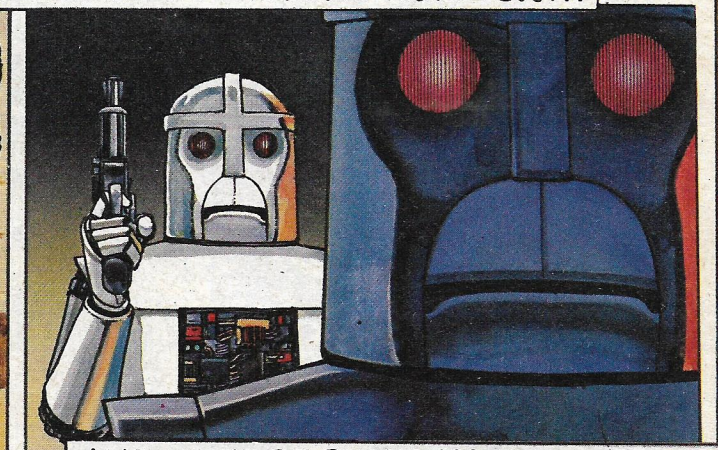
THE GALAXY'S FIRST COMPUTER COMIC

IMAGINE YOU WAKE UP AND CAN'T REMEMBER WHO YOU ARE. IMAGINE THAT THE UNFAMILIAR WORLD AROUND YOU IS A SERIES OF DEADLY COMPUTER GAMES YOU CAN'T CONTROL.

MOVE IT, PETRA! THAT'S GOING UP WITH A BANG!



YOU COULD BE THE LOAD RUNNER...

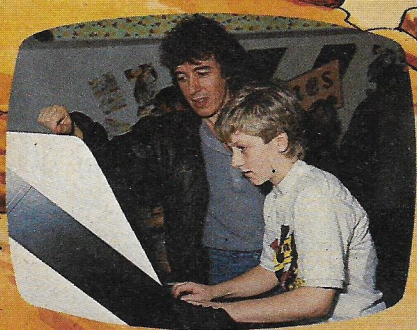


AND YOU'D BE RUNNING FOR YOUR LIFE.

DEFEAT FOR TRUMBULL

COMPUTER SUPERSTAR

ANDY MEETS HIS MATCH



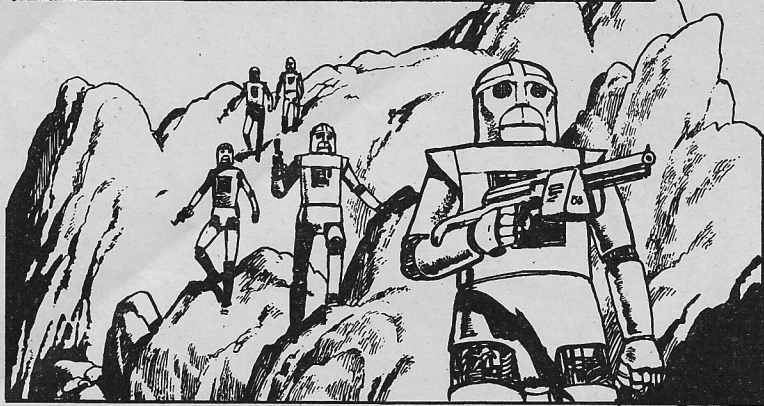
ELSEWHERE, THE **COMPUTER** IS PROCESSING NEW DATA...

IN RESPONSE TO THE **COMPUTER'S** COMMAND, THE SECURITY ROBOTS MOBILISE...

TRACE

=INVALID VARIABLE HAS CAUSED PROGRAM TO **CRASH**. VARIABLE TRACED AS UNKNOWN HUMAN FEMALE.

=SHE MUST BE LOCATED AND DEFINED... OR **DELETED**: EXECUTE SECURITY ROUTINE.



THANKS, WHOEVER YOU ARE. YOU CERTAINLY SAVED OUR LIVES BACK THERE.

I'M **PETRA** AND HE'S... **LOAD RUNNER**... IS THAT YOUR **REAL** NAME?

I DON'T **REMEMBER**. ALL I KNOW IS THE **CRAZY** THINGS THAT HAVE HAPPENED TO ME SINCE I WOKE UP IN THAT **CITY**.

UM, WELL **NONE** OF THEM DOES ACTUALLY. **NONE** OF THE **LOAD RUNNERS** I'VE SEEN, ANYWAY.

WHAT?! YOU MEAN... THERE HAVE BEEN **OTHERS**? WHAT HAPPENED TO THEM? WHO'S **CONTROLLING** ALL THIS?

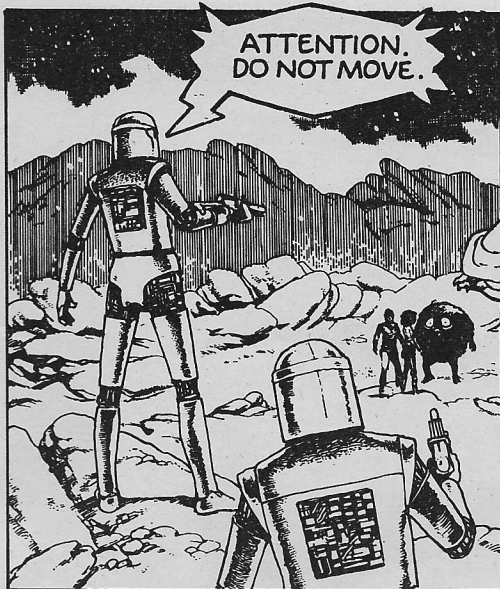
OH DEAR ME, ALL THESE **QUESTIONS**. I DON'T KNOW HOW **MANY** OTHERS, ... BUT **NONE** OF THEM MADE IT TO **SAFETY**. I TRIED MY BEST TO HELP THEM.

I'M SORRY, THAT'S ALL I KNOW. SOON THE **PROCESSOR** WILL DRAW ME BACK INTO **MEMORY**.

THE SECURITY ROBOTS, NEARBY, RELAY THE DATA TO THE **COMPUTER**...

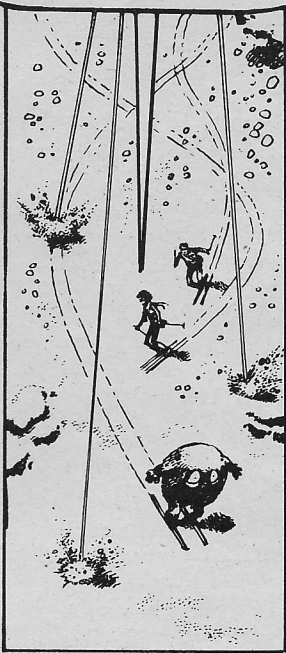
MEMORY... THE **PROCESSOR!** THIS BEGINS TO MAKE SOME **CRAZY** SORT OF SENSE...

LET'S GET GOING. I'M COLD... HEY, IT'S **SNOWING!**

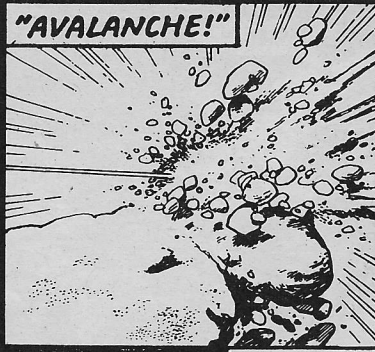


LOAD RUNNER

THIS SNOW'S SO LOOSE, THESE SHOTS COULD START AN...

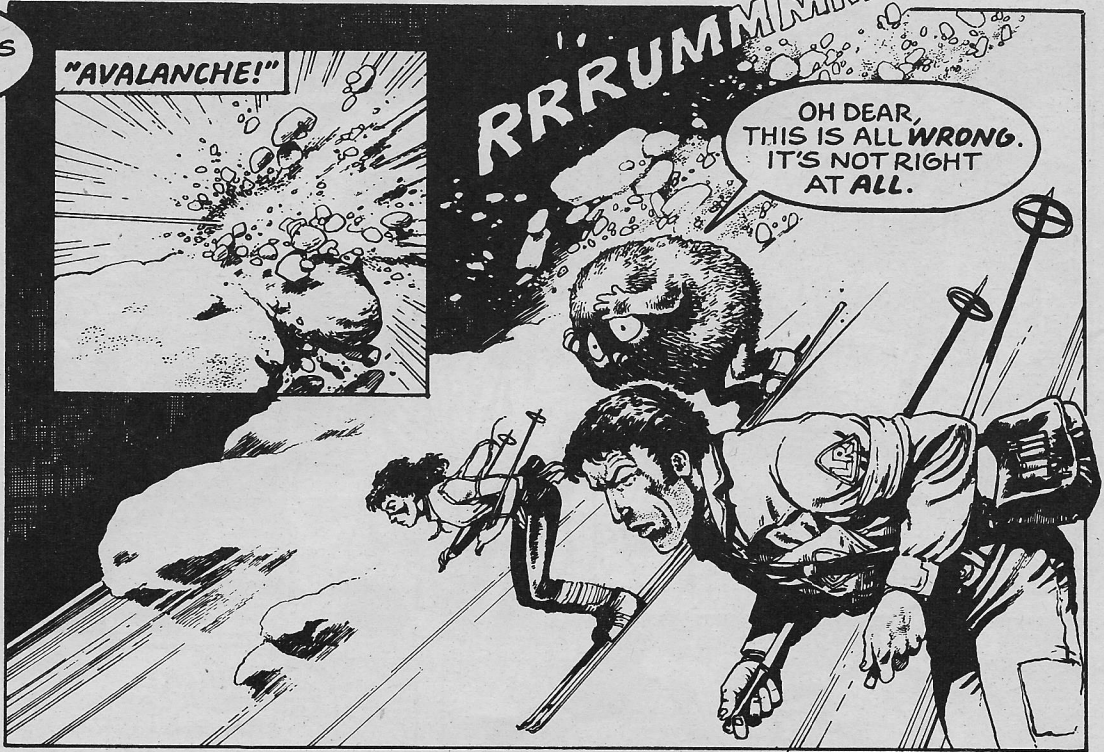


"AVALANCHE!"



RRRUMMMM

OH DEAR, THIS IS ALL WRONG. IT'S NOT RIGHT AT ALL.



AND THEN IT IS TOO LATE! TOO LATE.



UHH! HOW MUCH OF THIS... CAN WE TAKE... BEFORE IT KILLS US?

DON'T WORRY... UHH!... IF THIS DOESN'T KILL US...

SCRIPT
STEVE CRADDOCK

ARTWORK
PETER DENNIS

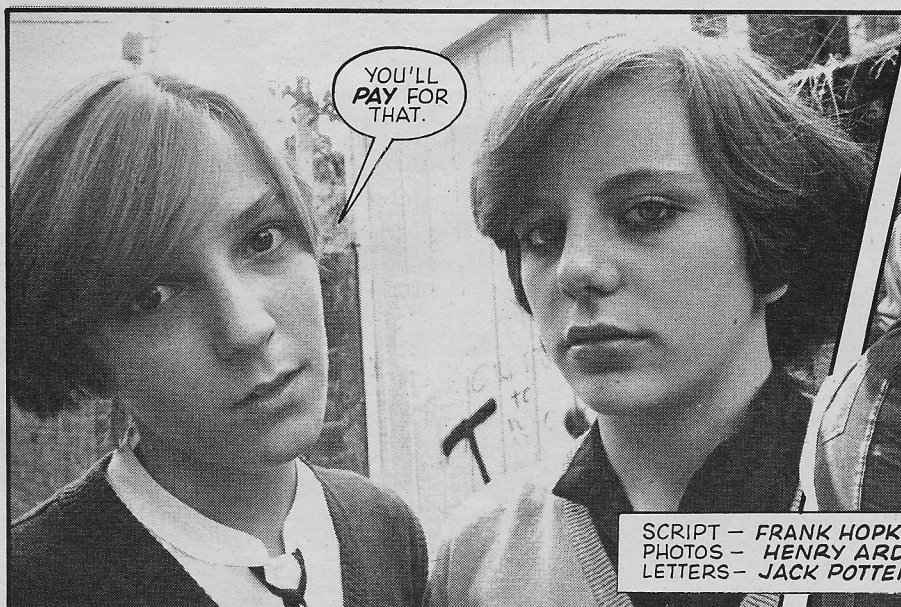
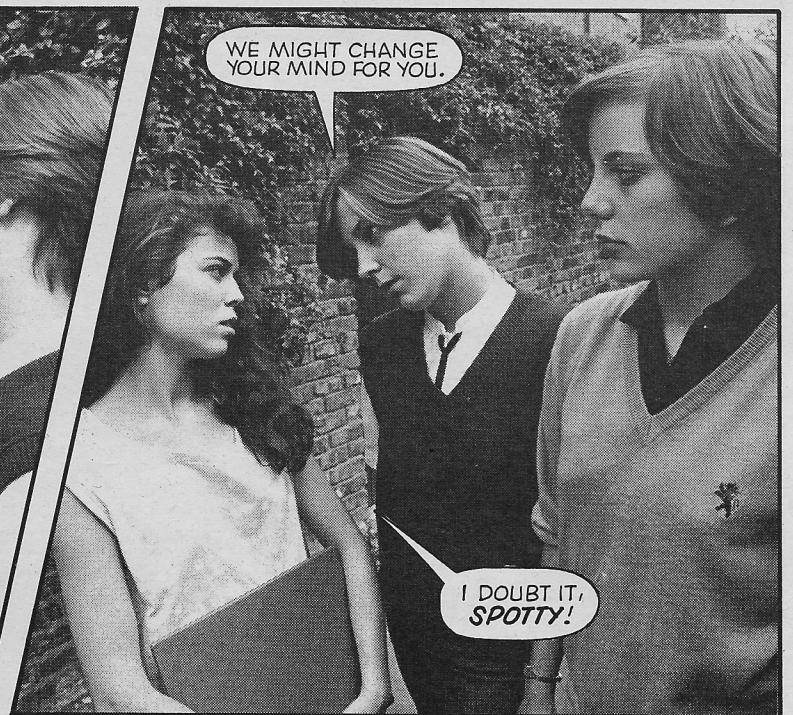
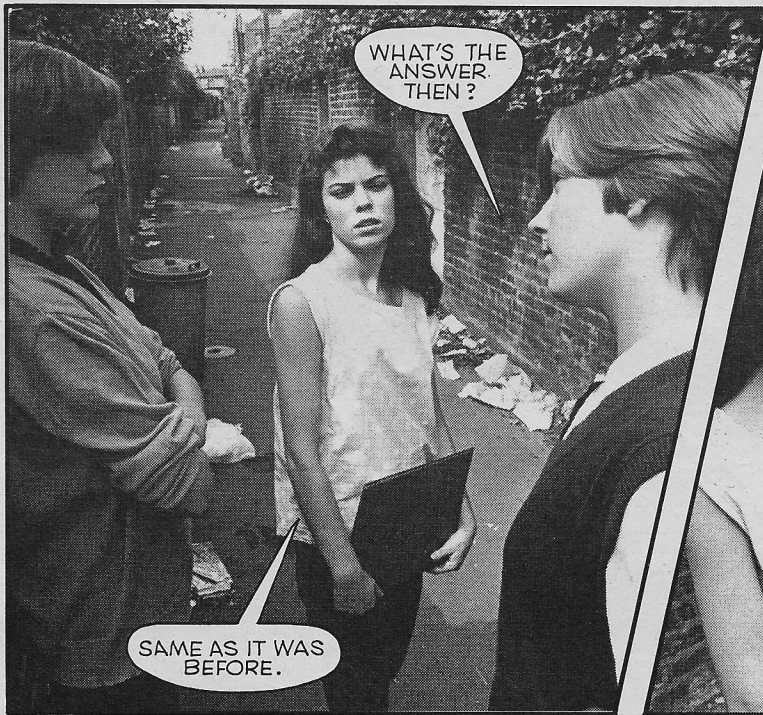
LETTERS
MICK HOLLINGWORTH

... SOMETHING ELSE WILL!

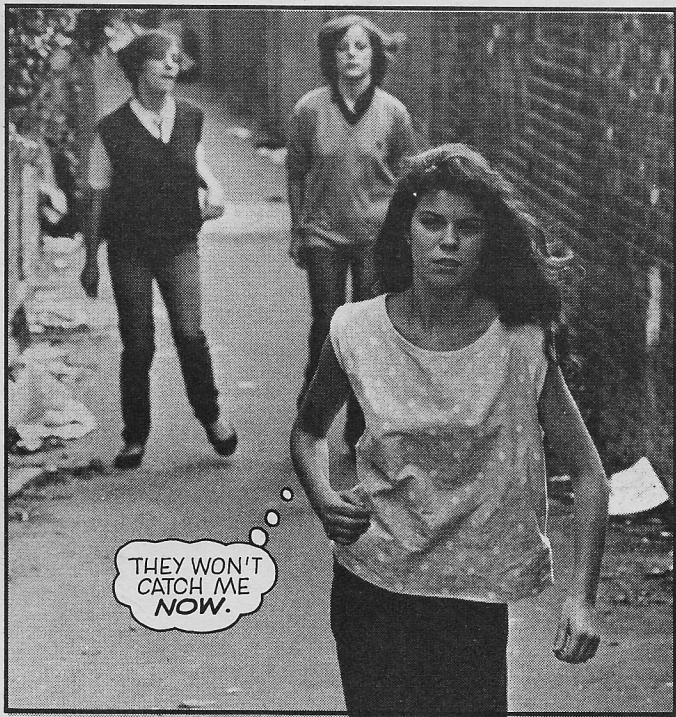
NEXT PRINTOUT: - BANG, YOU'RE DEAD!

SCHOOL FOR SOFTWARE

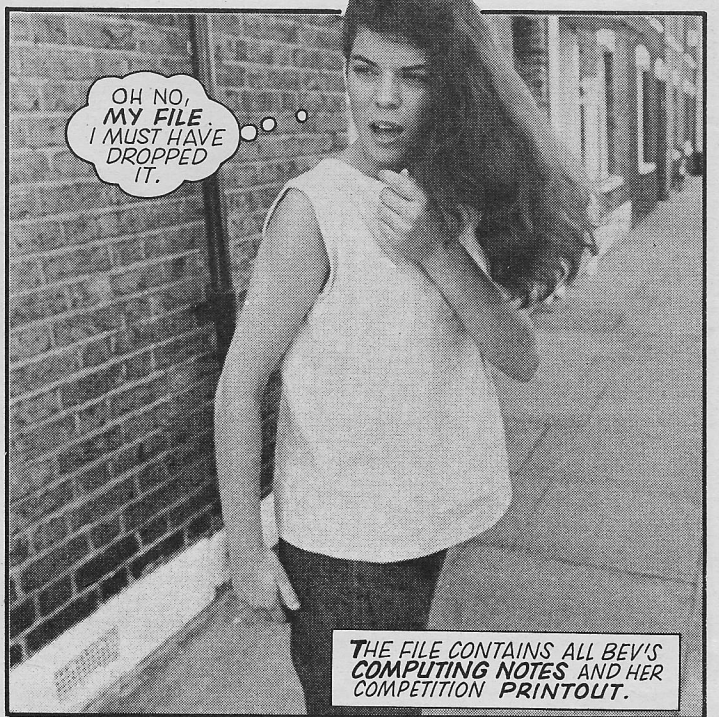
IN ORDER TO ENTER THE SCHOOL SOFTWARE COMPETITION **BEV JEAVONS** USES A DEMONSTRATION MODEL IN THE LOCAL MICRO SHOP. ON THE WAY HOME SHE MEETS TWO GIRLS WHO WANT TO MAKE USE OF HER EXPERTISE.



SCRIPT — FRANK HOPKINSON
PHOTOS — HENRY ARDEN
LETTERS — JACK POTTER

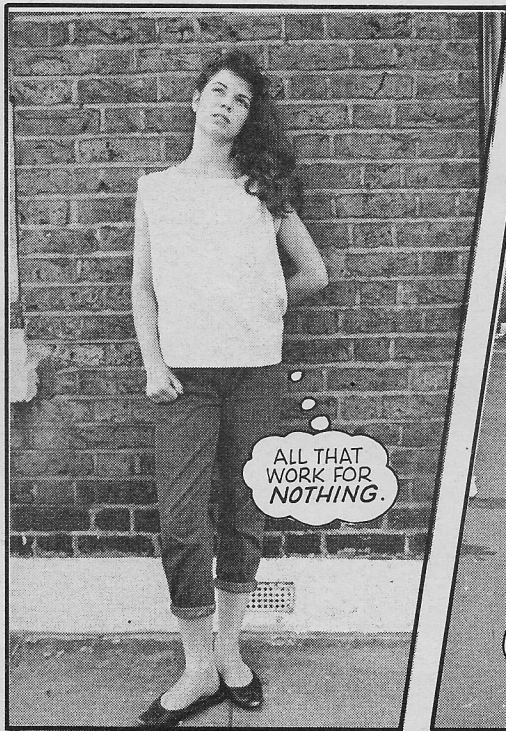


THEY WON'T CATCH ME NOW.

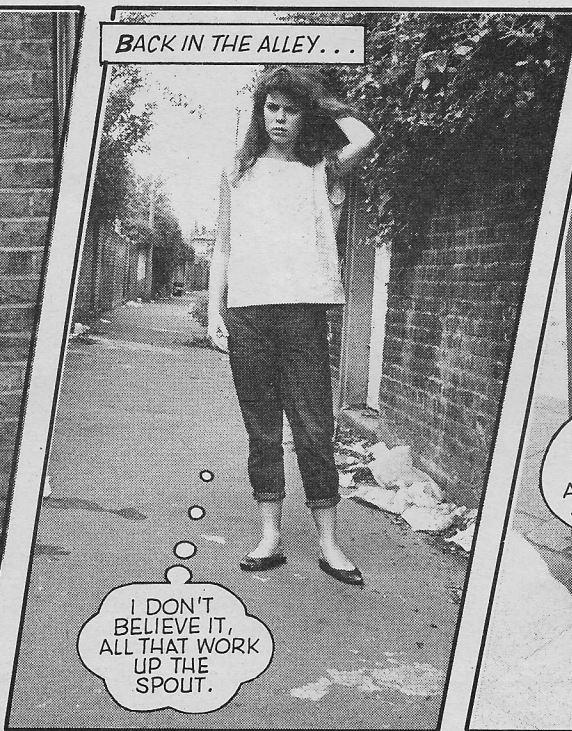


OH NO, MY FILE. I MUST HAVE DROPPED IT.

THE FILE CONTAINS ALL BEV'S COMPUTING NOTES AND HER COMPETITION PRINTOUT.



ALL THAT WORK FOR NOTHING.



BACK IN THE ALLEY...

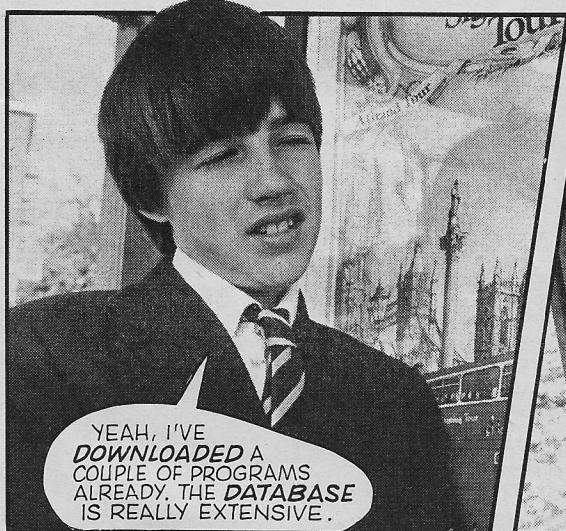
I DON'T BELIEVE IT, ALL THAT WORK UP THE SPOUT.



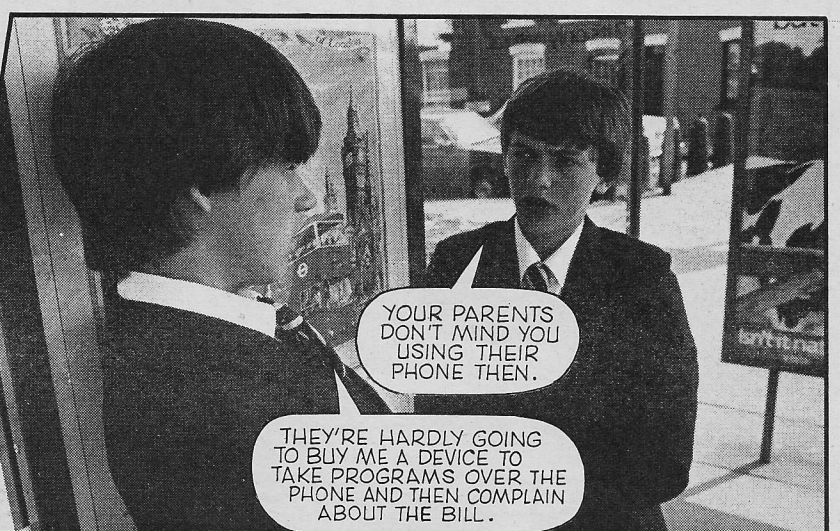
NEXT MONDAY.

THE MICRONET ADAPTOR ARRIVED ON SATURDAY.

GOT ANY PROGRAMS YET?

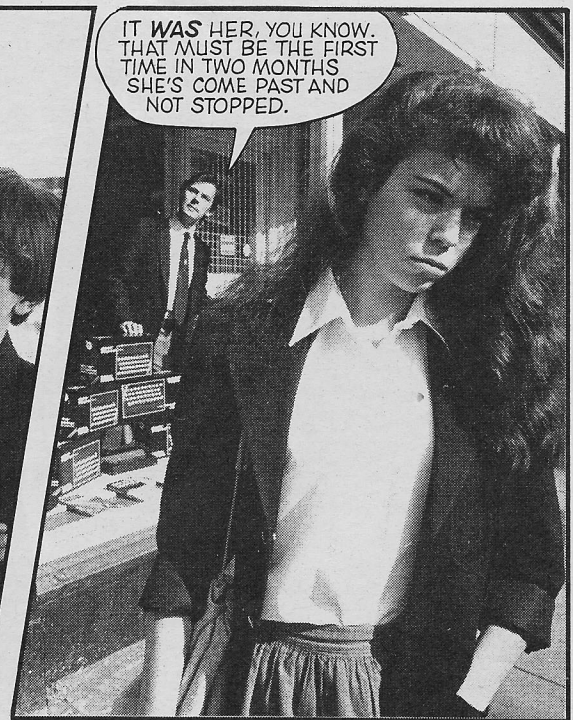
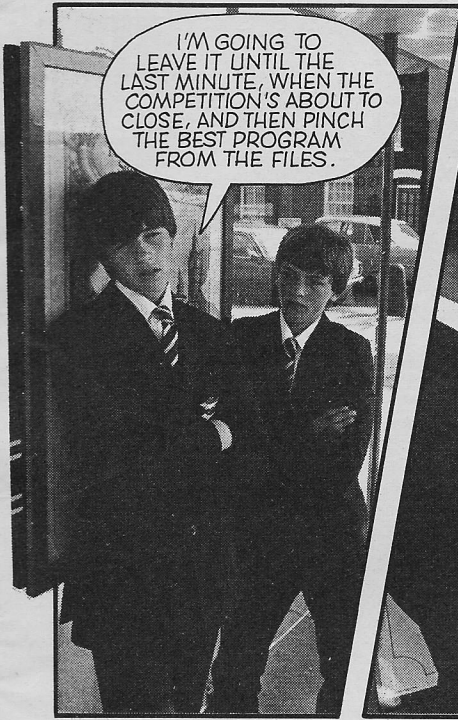


YEAH, I'VE DOWNLOADED A COUPLE OF PROGRAMS ALREADY. THE DATABASE IS REALLY EXTENSIVE.

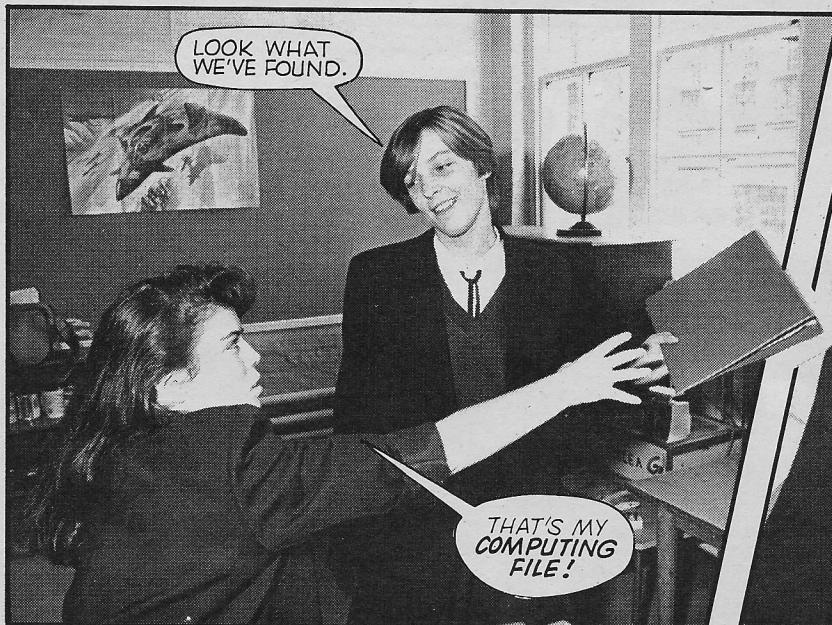
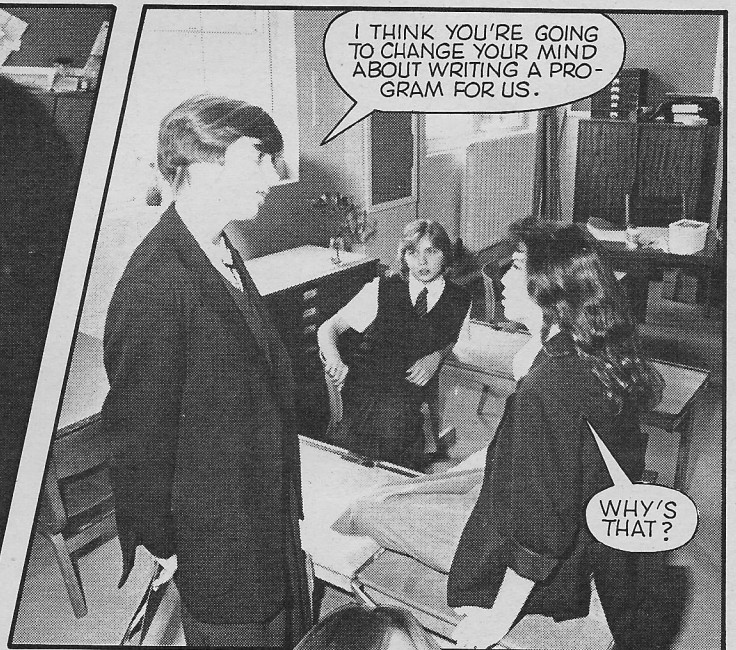
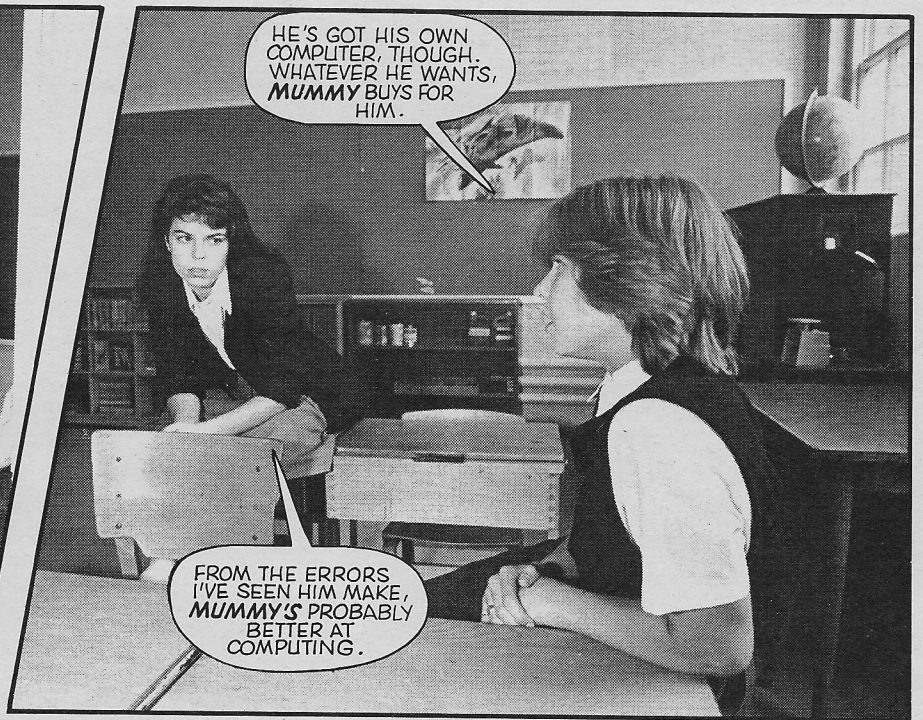


YOUR PARENTS DON'T MIND YOU USING THEIR PHONE THEN.

THEY'RE HARDLY GOING TO BUY ME A DEVICE TO TAKE PROGRAMS OVER THE PHONE AND THEN COMPLAIN ABOUT THE BILL.



SCHOOL FOR SOFTWARE



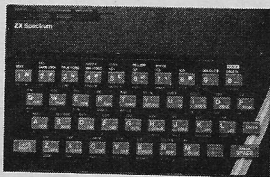
INTRODUCING 16/48. THE NEW MONTHLY COMPUTER MAGAZINE WE'VE GOT TAPED.

Forget about listings, copy typing, crashed programs and misprints. Move into a new era with the machine readable monthly.

Every month you get News, Reviews, Games and Educational programs. Month by month you can build a library of useful machine code routines to give your software that professional finish.

There are help features for programmers and for adventurers and every month great prizes to be won in our exciting competition.

ESPECIALLY COMPILED FOR YOUR SINCLAIR ZX SPECTRUM



16/48 will run on 16K and 48K machines. In fact the magazine knows which machine you are using and automatically uses the appropriate addresses.

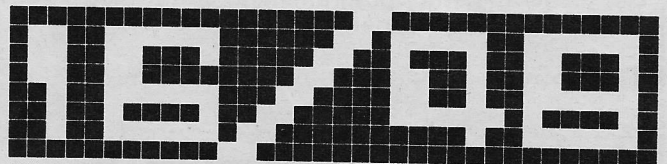


WIN A DIGITAL TRACER OR A LIGHT PEN

With the help of the machine code in our first competition, you will produce high speed animation you never thought possible. Combine a little skill with with lots of imagination and you could be our first winner.

A FEW OF THIS MONTH'S GREAT FEATURES INCLUDE...

- Copter** – shoot and then fly!
 - Stroke 4** – High speed educational animation
 - Soundfx** – a machine code noise library
 - Dungeons and Green Men** – expert help for reluctant prisoners and goblin fodder.
- PLUS LOADS MORE TO LOAD**



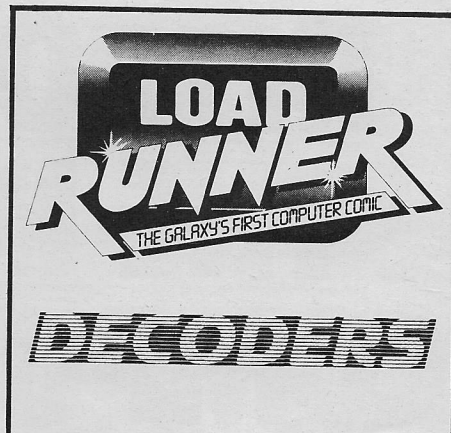
THE MONTHLY CASSETTE MAGAZINE
FOR THE 16K & 48K ZX SPECTRUM

Published by Magnetic Magazines Ltd., PO Box 180,
Kingston-upon-Thames, KT2 6AL Surrey

AVAILABLE IN BRANCHES OF W.H. SMITH, JOHN MENZIES AND OTHER LEADING NEWSAGENTS. LOOK OUT FOR THE LAUNCH ISSUE ON 13th OCTOBER

Load Runner T-shirts for lucky Decoders

ONCE AGAIN three exclusive *Load Runner* T-shirts are waiting to be claimed by the Decoders whose membership numbers are listed in the coded printout below. To discover whether you are one of the lucky ones, decode the message using your Cipher Book. The message also contains an easy question. If your number is included, claim your prize by writing your name, address and membership number on a postcard, together with the answer to the question, and post it to me at my installation base, to arrive not later than November 11. Don't forget to state whether you require a small, medium or large size T-shirt. The prize-winners will have their photographs displayed on this page in future printouts.



○ SBN GTRFX VDIINPQ APN:
 ○ JIN SBPNN ZNPJ IDIN.
 ○ JIN JIN IDIN ZNPJ.
 ○ JIN ZNPJ ZNPJ QDW.
 ○ VBJ DQ SBN BNPJDIN JY QRBJJG YJP QJYSVAPN?

(Keyword No. 5)



Join the Club

THE LOAD RUNNER DECODERS is a rapidly-growing fan club for readers of the first computer comic in the galaxy. A new member will receive a personalised security pass with his or her photograph mounted on it, together with a membership number. This Security Pass will give the bearer a reduced admission charge to exhibitions and computer fairs announced from time to time in the Decoders page of Load Runner.

Each member will also receive the Decoders Cipher Book which provides the key to the coded messages which appear in each printout. Exciting prizes are awarded to successful Decoders whose membership numbers appear in those messages.

The cost of membership is £3. If, however, you cut out the word Decoders from the top of this page and from one other printout of Load Runner, you can join the club at the special reduced rate of £1. Simply fill in the application form below and send it together with your membership fee and TWO passport-size photographs to: The Controller, Load Runner Decoders, ECC Publications, 196-200 Balls Pond Road, London N1 4AQ. Please make cheques or postal orders payable to ECC Publications Ltd.

List below the story/programs and fact routines you like best in Load Runner.

- 1
- 2
- 3

What do you dislike most in Load Runner?

Do you have a computer? YES/NO

Name Age

Address

* * * * *

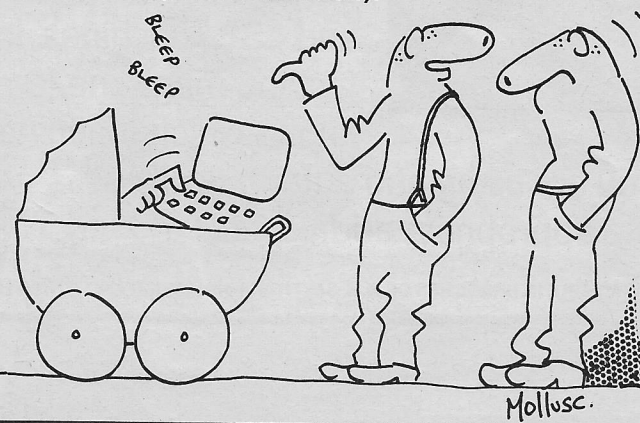
Star Letter

* ARE YOU a Decoder with a difference? Do you have an interesting hobby or an unusual use for your computer? Has something out-of-the-ordinary ever happened to you? Write and tell me about it, including a photograph if possible. £5 will be paid for each Star Letter published.

* * * * *

Caption Competition

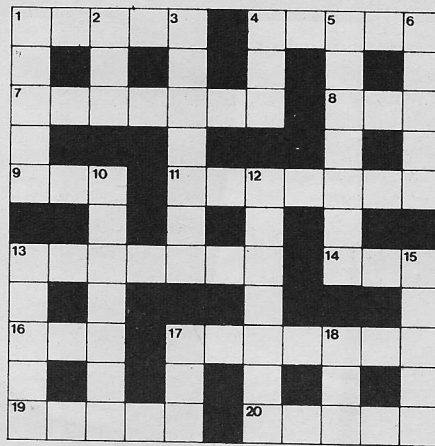
CAN YOU think of a funny caption for the joke which the artist has drawn below? If you can, write it on a postcard together with your name, address and membership number, and send it to: Decoder Joke, Load Runner, ECC Publications, 196-200 Balls Pond Road, London N1 4AQ. £5 will be paid for each entry published. This competition is open to Decoders only.



THE GRID BELOW contains five words which can be traced horizontally, vertically and diagonally. Find the correct starting letter for each word and trace that word to its end. The words all describe types of computer program and start with the letters printed in bold type.

S S I G N A L M
E B N T E E D U
N U E B U R C A
I N S V D I S I O N
I S O I D M U I T N
N A T A A L I T Y
E C A L A L I T Y
B E L L F O X Y

Wordplotter 10



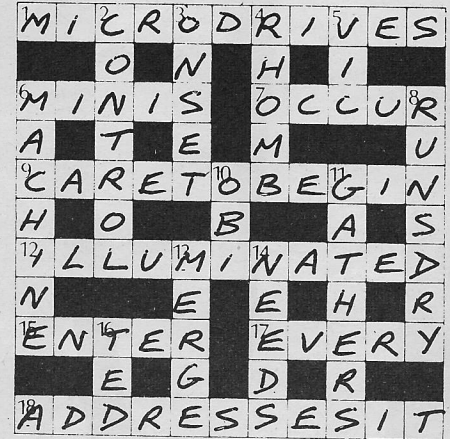
Across

1. George started computer algebra (3)
4. Computer for the teacher (5)
7. How processors carry out capital programs (7)
8. Essential lubricant for English programmers? (3)
9. Christopher and his DIY micro (3)
11. Make progress and cave collapsed (7)
13. Commercial folk, mostly computerised now (7)
14. Group in TRS-80 pixel-lighting instruction (3)
16. Foreground colour with Spectrum and Oric (3)
17. Not an add-on (5-2)
19. Muslim magistrates (5)
20. How the programmer treats his program until finished (5)

Down

1. Press it when you want some 8? (5)
2. Binary's highest number (3)
3. What parents hope micros will do (7)
4. Copy 4 across without programming language (3)
5. Equipment safeguards (7)
6. Wipe out and age the home counties (5)
10. Followed the spoon on the cassette? (7)
12. Remains of underclothing I put on germanium (7)
13. IBM motto (5)
15. Output from micro speakers (5)
17. Public transport line for data (3)
18. Thou French person! (3)

WORDPLOTTER 9 SOLUTION



ANSWERS to the puzzles in last printout:

The four computers concealed in the wordsquare are: DRAGON, NEWBRAIN, SPECTRUM and PET.

The mixed-up buzzword phrases are: LOAD RUNNER, BRAINSTORM, DISC DRIVE, MACHINE CODE, HIGH RESOLUTION.

THE LETTERS BELOW form words when in the correct order. They are on vertical strips which can be moved up and down. When a strip is moved up each letter moves up and the top one goes to the bottom row. When moved down the bottom letter moves to the top of the column. See if you can juggle the columns into the correct order to form five microcomputer terms.

M A Y A
 D R B
 K I I L E
 C A C V E
 D E T R O

Chilling TALES from the 'MEMORY' BANKS

A NEW SERIES of spine-tingling story-programs is LOADED and ready to RUN in Printout No. 11 — stories about computers past, present and future, and each with a sting in the tail! Don't miss the first mysterious Tale from the Memory Banks — order your copy NOW.

PRINTOUT No. 11
 ON SALE
 NOVEMBER 10



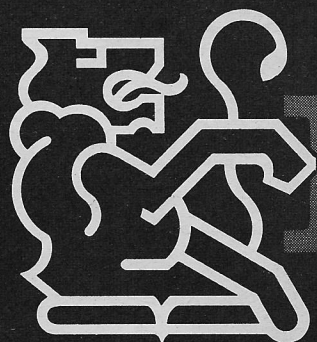
WAVE

48K SPECTRUM



VALHALLA

MOVI
SOFT



THE LEGEND

VALHALLA is supplied on a 48K Spectrum program cassette, with VALHALLA player manual and presentation box. As VALHALLA uses the full 48K RAM, microdrives and full-size printers are not supported, ZX printer optional.

VALHALLA is normally available from stock, and orders are despatched by return. If, for any reason we are unable to fulfil your order within 14 days of receipt, we will notify you.

VALHALLA cassettes carry an unconditional lifetime replacement guarantee.

TO ORDER: (UK Orders Only) Simply complete the coupon, and FREEPOST with your cheque/P.O. made payable to LEGEND (UK Mail Order).
Credit Card Orders: By phone 9-5.30 Mon to Fri, stating name and address, Card No. and item(s) required.

RETAILERS: Please contact your regular distributor or LEGEND (Trade Distribution) at the address below.

LEGEND (UK Mail Order) FREEPOST
1 Milton Road, Cambridge CB4 1UY
(0223) 312453

MOVI:SOFT OPERATING SYSTEM UNDER LICENCE.

Post to:- LEGEND (UK Mail Order) FREEPOST
1 Milton Road, Cambridge CB4 1UY

Please send me.....Copy/copies of
VALHALLA for the 48K Spectrum.

I enclose cheque/P.O. for £.....
(£14.95 each incl. VAT and P&P).



Or I wish to pay by Access/Barclaycard/Visa

Card No.....
Please print name and address

Name.....

Address.....

.....
Credit Card holder's signature.....

Andy Royd - the DOMINATORS' Rogue star!

FOILING KIT CURSOR'S ATTEMPT TO SABOTAGE THE DOMINATORS' ROBOPLAYERS, ANDY FOLLOWS HIM TO A SECRET RENDEZVOUS WITH BIG MAN MARSHALL AND AN UNKNOWN THIRD MAN...

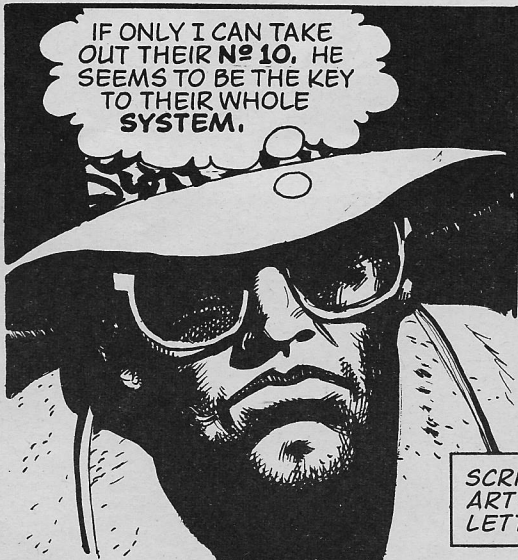


YOU'VE GOT UNTIL NEXT SATURDAY'S MATCH TO COME UP WITH SOMETHING THAT'LL FINISH THE DOMS! -OR YOU'LL END UP AS A ROBOXER'S PUNCH-BAG!



SO MARSHALL WAS BEHIND THAT FIASCO THIS AFTERNOON.

IF ONLY I CAN TAKE OUT THEIR NO 10, HE SEEMS TO BE THE KEY TO THEIR WHOLE SYSTEM.



BUT WHAT HE DOESN'T KNOW IS THAT THE DOMS' NO 10 IS HUMAN!



SCRIPT - CHRIS WINCH
ART - JOHN STOKES
LETTERS - CRADDOCK

USING THE MODEM IN HIS ROBOPLAYER HELMET, ANDY LINKS INTO THE COMPUTER CONSOLE AT THE DOMINATOR'S FOOTBALL GROUND.



PATCH ME IN, DAVY!

00718

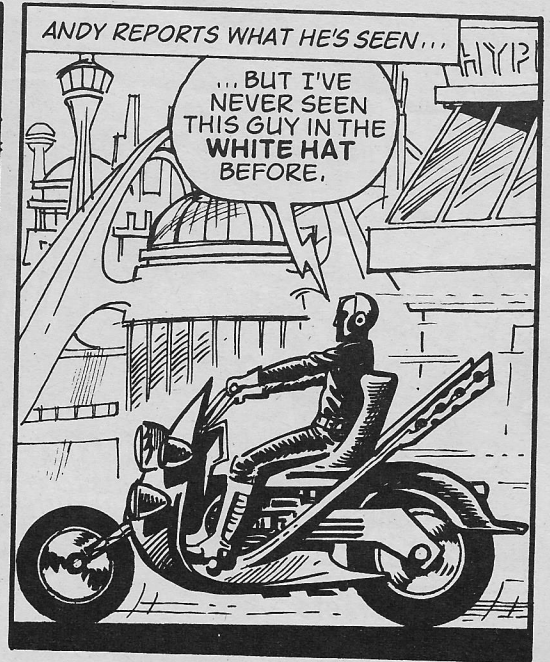
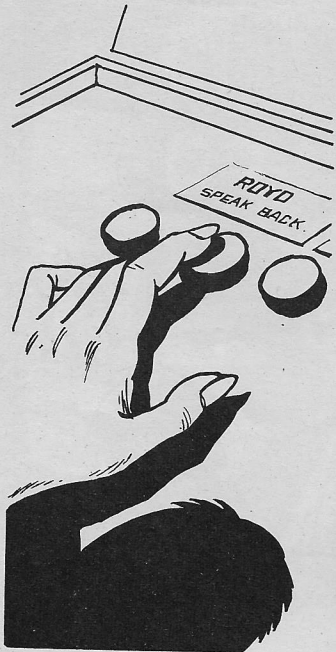
SPEECH FACILITY REQUEST
CODE - ROYD

INITIATE VOICE RECOGNITION
FILE

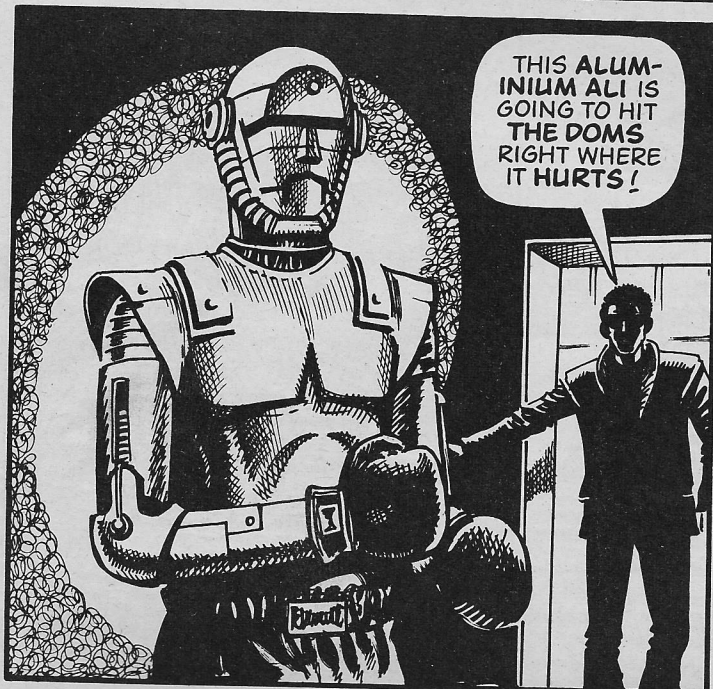
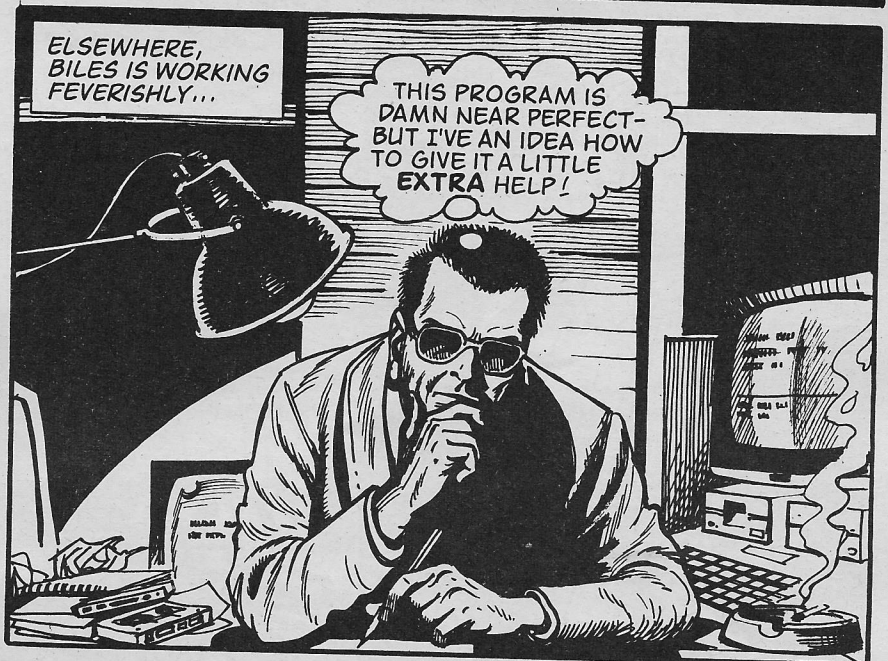
BEEEP!



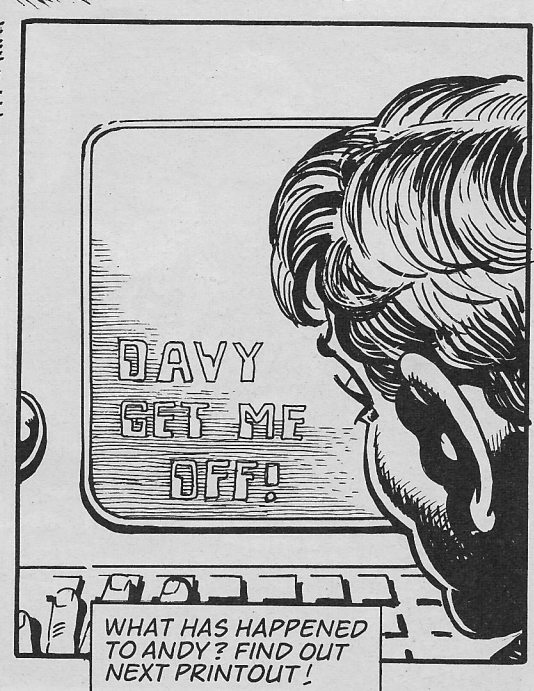
THAT'S ANDY'S CALL SIGN! I'LL SWITCH TO AUDIO.



OH, I THINK I HAVE! HIS NAME'S ROLAND BILES. HE'S A PROGRAMMER. VERY GOOD, BUT VERY BENT.



WITH HIS BIO-MECHANICAL LIMBS AND EXCEPTIONAL STRENGTH...



**Coming
soon**

**Only
£1.95**

The Second Sinclair User Annual

The most up-to-date guide to the world of Sinclair computers

Full reviews of all
the top software,
complete Basic
programming
course latest
round-up of
peripherals,
masses of the best
program listings
and much more

**Make sure you do not miss your copy.
Place an order today.**

To Sinclair User, ECC Publications, 198-200 Balls Pond Road.

Name I enclose a cheque for £

Address Signed

.....
.....

Now you can take a new

AMERICAN look at your Sinclair!

**With the new Timex Sinclair User magazine to link YOU into a
huge network of American enthusiasts**

Published monthly since May, Timex Sinclair User has taken the States by storm. It is packed full of news, reviews, programs and user information ... linking you into the vast Timex Sinclair User network.

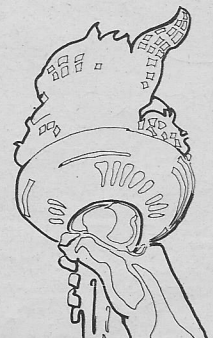
Remember, this is a new magazine written from the American viewpoint — but it could open up whole new horizons for you on your Sinclair enjoyment. Take the new American view by ordering right away and see how the U.S.A. welcomed the Sinclair!

The success of the Sinclair ZX80, ZX81 and Spectrum in the U.K. has been phenomenal. But in the States the Sinclair has been given a real American welcome — making the Sinclair range the biggest seller in the world! The American ZX81 equivalent: "The Timex Sinclair 1000" from the giant Timex organisation, has been bought by hundreds of thousands of enthusiasts.

The success of 'Sinclair User' magazine in the U.K. followed a similar pattern — so now we have matched the U.S.A. enthusiasm with a brand new U.S.A. magazine — *the Timex Sinclair User!*

Annual subscription rate is £20. Single copies are £2 (including P & P).

Fill in the order form
NOW to discover the
American way of
computing!



Send to: **TIMEX SINCLAIR USER, ECC Publications Ltd.,
196-200 Balls Pond Road, London N1 4AQ**

**Yes, I want to subscribe to TIMEX SINCLAIR USER at the
special U.K. rate of £20 for 12 issues delivered to my door.**

Name _____

Address _____

I enclose a cheque/P.O. for £ _____

Please charge my credit card

Card Name _____ **Card Number** _____

Signature _____ **Date** _____

N.B. This offer applies to UK subscribers only. Overseas rates available on request.



N.B. Subscribers to Sinclair Programs or Sinclair Projects should be aware that Timex Sinclair User will occasionally reproduce top articles that have appeared in our U.K. magazines.

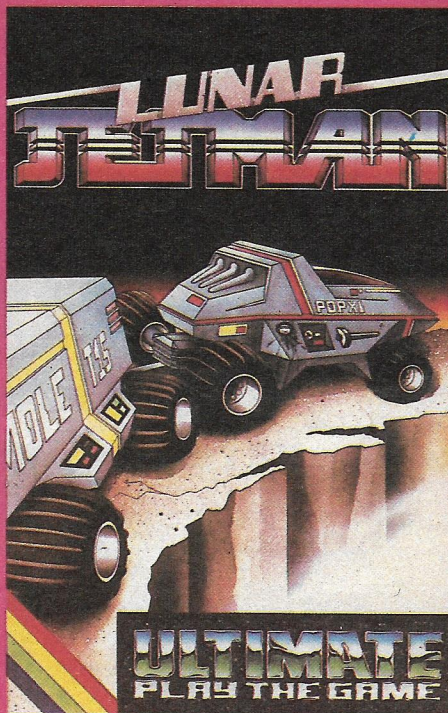
LUNAR JETMAN - 48K ZX Spectrum

LUNAR JETMAN - For the 48K Sinclair ZX Spectrum

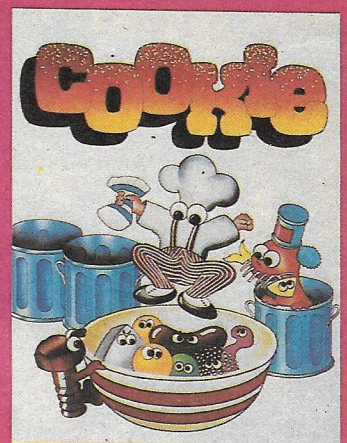
LUNAR JETMAN - The Ultimate Intergalactic G.A.S. (Graphic Arcade Simulation) Adventure Space Battle.

LUNAR JETMAN - Arcade standard, 100% machine code, incredible sound effects, amazing smooth high resolution graphics, the totally new addictive concept and all those extra features you expect from the **ULTIMATE** games people.

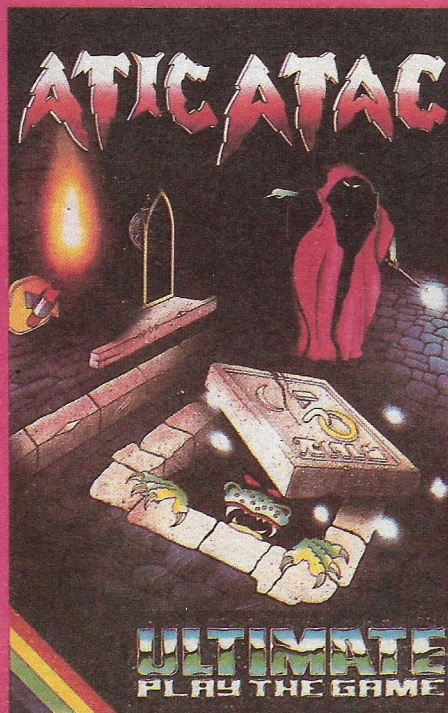
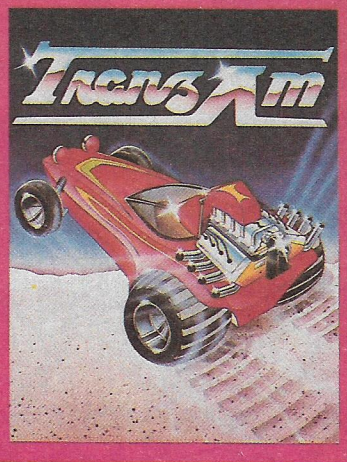
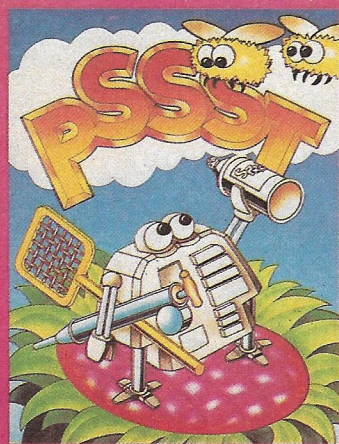
Design - The **ULTIMATE PLAY THE GAME** design team.



COOKIE - 16/48K ZX Spectrum



PSSST - 19/48K ZX Spectrum



TRANZ AM - 16/48K ZX Spectrum

JET PAC - 16/48K ZX Spectrum or 8K Expanded VIC 20

ATIC ATAC - 48K ZX Spectrum

Dealer enquiries welcome. Phone (0530) 411485

These games should be available from **W.H. SMITHS, BOOTS, JOHN MENZIES, LASKYS, SPECTRUM CENTRES**, other large department stores and all good major software retailers. Alternatively, send the coupon to **ULTIMATE PLAY THE GAME** for immediate dispatch by return, subject to availability.

£5.50 each including VAT, first class postage and packing within UK.

Post this coupon to:

ULTIMATE PLAY THE GAME, The Green, Ashby de la Zouch, Leicestershire, LE6 5JU

Please rush me the following:

LUNAR JETMAN

ATIC ATAC

JET PAC

COOKIE

TRANZ AM

PSSST

JET PAC (8K Expanded VIC 20)

I enclose cheque/PO for £.....

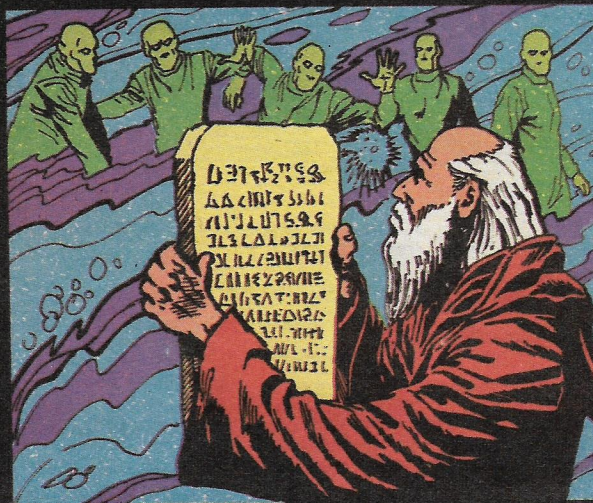
Name.....

Address.....

Post Code.....

Philosopher's Quest

for the BBC Microcomputer Model B



Cryptic quest

FINDING A TREASURE and bringing it back to where you started is your mission in *Philosopher's Quest* — and it will probably take some time before you succeed. You start in a small shop, from which you can take various objects to help you on your way — including an aqualung, which sounds as if it might be useful. Outside it is pitch dark and a giant spider threatens to pounce before you get very much further.

In the best traditions of adventure games, you have to guess the answers the computer wants to hear before it allows you to proceed — it will say "eh?" whenever it does not understand. There is a well-presented little booklet in which the chief philosopher gives various cryptic hints to help you and although you will not find any graphics, the game is intriguing enough to keep you playing, without being so difficult that you want to throw up your hands in despair at the very thought of a philosopher.

Produced by Acornsoft, *Philosopher's Quest* runs on the BBC Model B and costs £9.95.

Fun, 7; addictive, 8; graphics, 0.

Marooned in a minefield

BILL THE WORM, star of stage and screen, is in trouble. He is marooned in the middle of a minefield for some reason and you must rescue him and various assorted damsels in distress.

In *Mined Out*, for the Dragon 32, you must manoeuvre your player through the minefield, starting at the bottom and moving up to the top. If you move near a mine the Dragon will warn you with a beep and if you land on a mine you will be blown up and Bill will never be rescued.

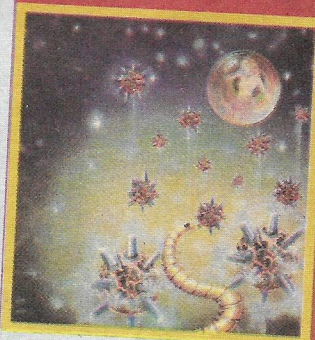
There is a fence round the field and you can move around the top and bottom so long as you stay close to the fence. If you hit the fence you will suffer a fatal dose of electricity.

When the game has finished and you have lost, the computer will display the path which led you to your death. To add salt to the wound it will even show you where you exploded.

Mined Out is good fun and excellent value. The graphics may not be exceptional but the whole game concept makes up for that inadequacy. It can be obtained from Quicksilva and costs £4.95.

Fun, 8; addictive, 9; graphics, 7.

MINED-OUT DRAGON GAMES FROM QUICKSILVA



Terror falls from above

THE TERROR in the sky is the subject of *Terror-Daktil* for the 48K Spectrum.

You are trapped in a jungle after your aircraft has crashed on to a plateau. It will take several days for the search craft to find you and the monsters which could attack include some giant reptilian birds which swoop from the heat-filled sky. You will be safe during the night but dawn will bring the terror anew.

The manufacturer claims that it uses, three-dimensional effects. While the bird sequences are very detailed the 3D effect would be negligible were it not for the grid making up the floor of the valley below.

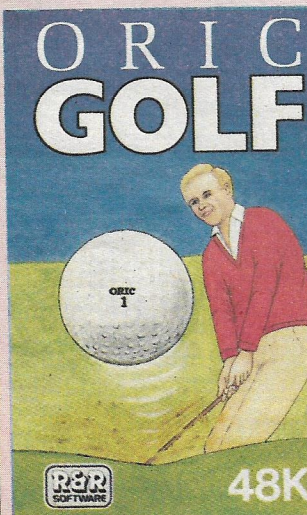
The introductory sequences are unnecessarily long as they first describe the crash and then show it visually in full animated graphics. If you want a quick entry into the game you will be disappointed. It takes several minutes to reach the main attack sequence with the birds swooping and you are using your antique cannon on them. That sequence lasts, on average, only for about 50 seconds.

If you want a fast action game which lasts for a long time it would be a good idea to give this one a miss.

Terror-Daktil can be obtained from Melbourne House and costs £6.95.

Fun, 5; addictive, 5; graphics, 8.

Tee-off with Oric



EITHER YOU LOVE or hate the thought of playing golf and it is the same with the new version of *Golf* for the Oric 48K.

One to six players can participate, although it is no fun playing on your own. The rules are the same as for the real game of golf although this is more for fun and not an accurate simulation of the sport of directors.

All the usual hazards are to be found on the course. They include water, trees, fairways, bunkers and the rough. You will find that you make a habit of falling into all those traps at least 10 times in a game. There is no way of escaping them, unless you have worked out how to angle your strokes in such a way as to get a hole in one. In many instances your skill will be of no help, as trees will block the tee-off position from the hole at which you are aiming. In that case you should try to hit the ball so that it clears the woods, as there is nothing worse than getting caught inside.

The game is a little undramatic for those of you who like *Space Invaders* or *Galaxians* but for those who want to relax for a while golf will take your mind off things.

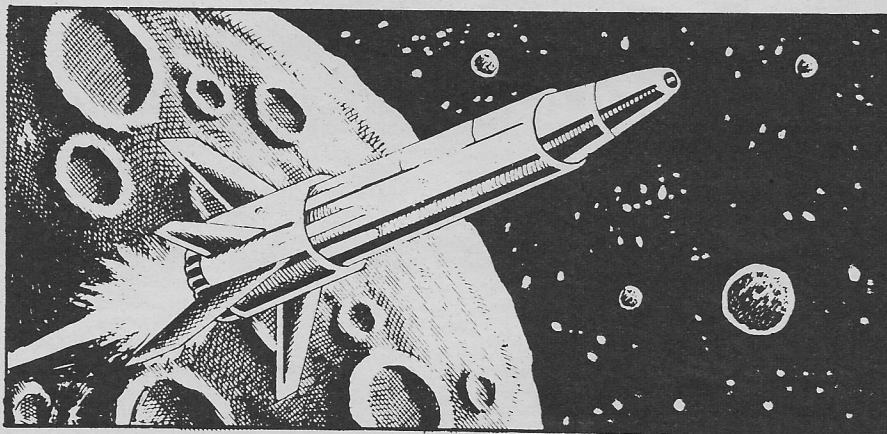
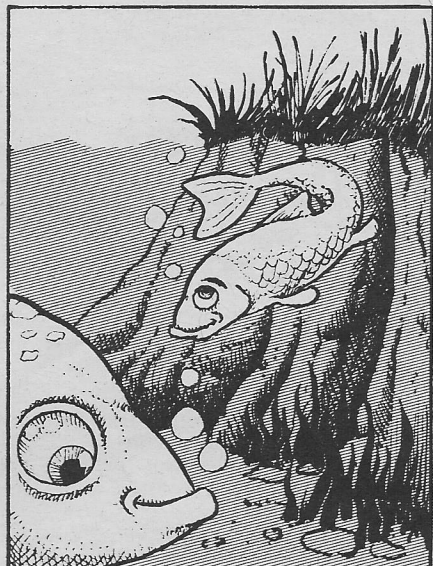
Golf costs £7.95 and can be obtained from R and R Software.

Fun, 7; addictive, 7; graphics, 8.

Computers clean up

FISH cannot survive in polluted water as they often become poisoned or die through lack of oxygen. Fish swimming in the River Frome near Bath, now have a much better chance of enjoying a clean home, because of a computer.

The Wessex Water Authority is using equipment which can compare a sample of dirty water to the characteristics of 30,000 chemicals stored in the computer memory. The importance to the fish is that the sample can be analysed in a few hours, compared to months using manual methods, and that means the source of the pollution can be traced quickly.



Chips in space

ALTHOUGH SPACE has yet to be fully conquered, research by scientists working on space projects helped to revolutionise computing as we know it today. It happened because they realised that if electronic devices were to go into space they had to be altered radically, as they were too big.

Miniaturisation was the answer and so scientists developed the forerunner of today's microchip, which as a bonus proved to be more reliable than the old electrical circuits, as well as less power-hungry. At the time those scientists were probably unaware exactly how crucial the concept was to be to computing. The rest is history.

Self-programming micros?

EVERY PROGRAMMER who cannot track that one elusive bug which is ruining a program must wish for a computer where the user has only to specify what the program has to do and the computer does all the rest of the programming. Computers of that kind might not be so far away if research taking place now is fruitful. Self-programming systems are technically possible to build already — one developed a few years ago could even make mistakes typical of humans and then correct the errors automatically — but they need very large memories and are very slow.

Now, however, a revitalised race is on in the U.S. to develop a commercial self-programming computer which will tackle the problems and industry watchers say if that happens it could mean the end of programming and, more satisfactorily, the end of software errors.

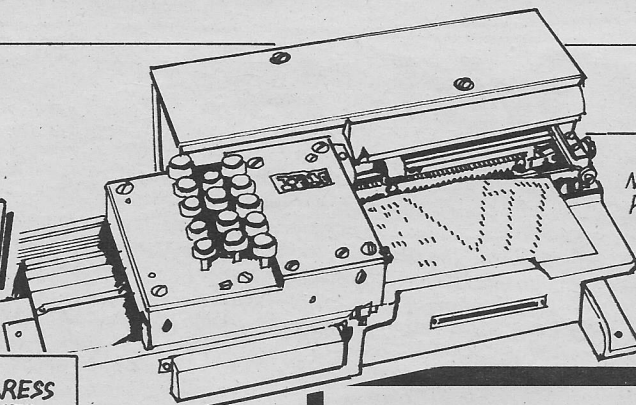
The Computer Story

A HISTORY OF COMPUTERS
PART
TEN

SOCIAL AND TECHNICAL PROGRESS ALONE COULD NOT ENSURE THE EMERGENCE OF COMPUTERS AS WE KNOW THEM TODAY. JUST AS NECESSARY WERE TECHNICAL RESOURCES AND, MOST OF ALL, LOTS AND LOTS OF MONEY.

AS WE SHALL SEE, UNIVERSITIES PROVIDED A LOT OF THE CREATIVE AND INTELLECTUAL EXPERTISE, AND WORLD WAR II WAS THE SPUR FOR GOVERNMENT INVESTMENT IN SPECIAL-PURPOSE COMPUTERS. THE BASIS OF A SUCCESSFUL COMPUTER INDUSTRY, HOWEVER, LAY IN BIG BUSINESS.

THE WAY-AHEAD



I THINK
BUSINESS
INTERNATIONAL
MACHINES

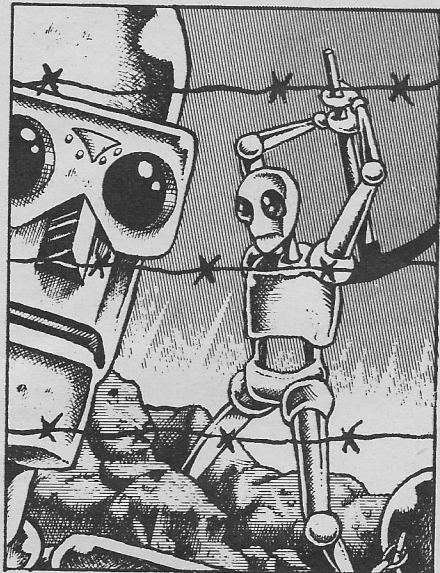
A COMPANY DESTINED TO BECOME MAJOR FORCE IN MAKING COMPUTER POPULAR AFTER WORLD WAR II WAS IBM. IT ALSO BUILT AND PROVIDED THE MONEY FOR AMERICA'S FIRST AUTOMATIC DIGITAL COMPUTER. IN THE EARLY 1930s ALL THIS LAY IN THE FUTURE, BUT UNDER THE PRESIDENCY OF THOMAS J. WATSON, A BUSINESS EMPIRE WAS BEING CREATED THAT BECAME ONE OF THE WORLD'S GREATEST MULTINATIONAL CORPORATIONS, EMPLOYING A QUARTER OF A MILLION PEOPLE.

Top: Tabulating machinery and punched-card machines like the one shown were IBM's main products in the 1930s. Above: Watson brought with him to IBM the slogan T-H-I-N-K which was printed on cards and hung in every office. Left: The early IBM logo. Far right: Early IBM office

Written and drawn by Chris Smith

Slave robots

DID YOU KNOW that the word robot originated from the Czech word *robota*, which means compulsory labour? The playwright Karel Capek first used the term *robota* when he described hypothetical androids used for slave labour, who eventually revolted against their masters. That was in 1920 and today scientists use the word robotics when they are studying automatic machines which can be programmed for all kinds of jobs.



● Buzzwords are the jargon of the computer world and can be very confusing. Below, *Load Runner* continues its glossary of computing terms. Get buzzing.

● **Image scan.** Any device which handles images, such as pictures, graphics or photographs. Such devices include light pens, graph plotters and optical readers which can read handwriting. An image scan includes any way of putting information about a visible object into a computer.

● **Impact printer.** A computer printer which uses a head which has to hit something, i.e., paper, to create an image. The print-head usually hits the inked ribbon, which then hits the paper and puts ink on to it.

● **Information.** Anything stored in the computer. Another term is data. It can be in the form of programs or data on which the computer will act, such as a list of names and addresses.

● **Input/output (I/O).** The entry and exit of information to and from a computer system. Input can be made using devices such as a keyboard or light pen. Output is provided for a program via a screen or a printer.

● **Instruction.** A command or statement which orders the computer to do something. Usually it consists of a command such as PRINT and a piece of data, such as INFORM. That instruction will print out the data INFORM on to a screen.

Integer. A whole number, such as 10 or 15, which does not include a decimal portion. It means that there is no decimal point in the number, such as 1.2 or 5.665.

Integrated circuit. An electronic chip which controls a computer. It contains many pathways through which electronic currents pass. The pulses perform the work of the computer.

Intelligence. Where a computer is concerned it means the act of reasoning in the manner a human would do. Computers are not yet capable of true intelligence, so we term their intelligence as artificial.

Interface. A piece of hardware which will allow another device, such as a printer or another computer, to be attached to the main computer. There are two types. The Centronics interface can be used to attach printers to a computer. The RS232 and its cousin, the RS423, will connect printers and computers to a main computer.

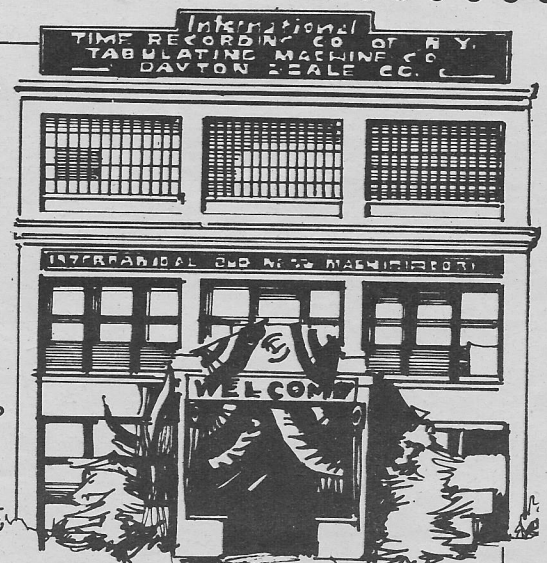
Interpreter. The program inside the machine which translates high-level Basic language into machine code, a language the computer can understand.



THOMAS J. WATSON WAS BORN IN NEW YORK IN 1874. WORKED AS A GROCERY BOOKKEEPER, THEN SOLD SEWING MACHINES AND MUSICAL INSTRUMENTS. IN 1914, AFTER NINE YEARS

WITH THE NATIONAL CASH REGISTER CO. (NCR), WHERE HE BECAME GENERAL SALES MANAGER, HE WAS CHOSEN TO HEAD THE COMPUTING-TABULATING-RECORDING COMPANY. THIS HAD BEEN FORMED IN A MERGER OF HERMAN HOLLERITH'S HIGHLY SUCCESSFUL COMPANY WITH THREE SMALLER ONES. IN TEN YEARS CTR'S BUSINESS TRIPLED, AND WATSON RENAMED IT INTERNATIONAL BUSINESS MACHINES (IBM) WITH THE AIM OF CAPTURING WORLD MARKETS.

WATSON BELIEVED IN SALESMANSHIP AS A PROFESSION, AND ALTHOUGH UNPREDICTABLE AND HOT-TEMPERED, WAS AN INSPIRING LEADER. HE MOTIVATED SALESMEN WITH ANNUAL TARGETS, RAN TRAINING SCHOOLS FOR THEM, AND SET UP ENGINEERS' CLASSES WHERE CUSTOMERS LEARNED TO USE THEIR IBM EQUIPMENT MORE EFFECTIVELY. ALTHOUGH HE RESISTED THE FORMATION OF TRADES UNIONS WITHIN IBM, HE ALLOWED WORKERS SHARES INSTEAD OF SALARY, AND SEVERAL

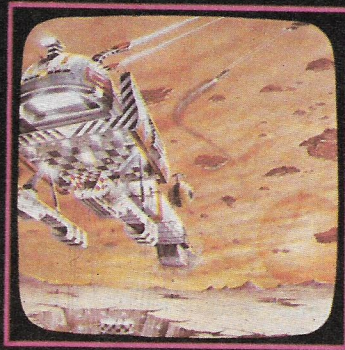


BECAME MILLIONAIRES.

WATSON WAS SOMETHING OF A SHOWMAN - HIS SPEECHES WERE PEPPERED WITH MORALE-BOOSTING SLOGANS, AND HE WAS SOON ABLE TO BOAST, "THE SUN NEVER SETS ON IBM."

BOOK A TEST FIGHT TODAY!

MISSION IMPOSSIBLE



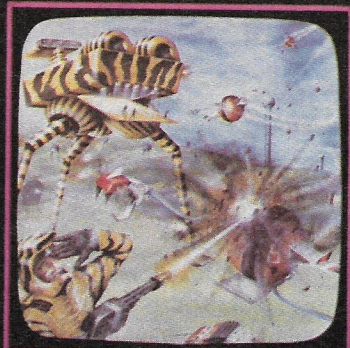
on/off

ARMAGEDDON



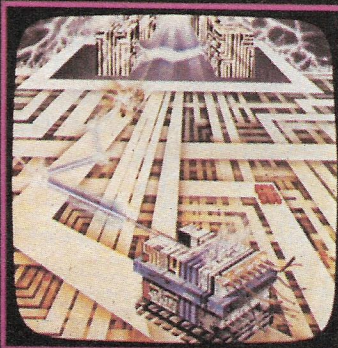
on/off

EXTERMINATOR



on/off

BRAIN DAMAGE



on/off



You'll have a REAL fight on your hands when you tackle our new games.

They're all-action games designed to push your senses to new limits. Take "Brain Damage"; trapped in your computer's micro-circuits you'll need all your resources to defeat the CPU's electron panzers . . . and if they don't get you, the Rogue Programs will.

When you get your breath back you'll be running for your life again in "Exterminator". Transported into the future you'll find that earth is a very different place. Robots rule the world and the human race is almost extinct, there's only one family left. You have to save them . . . but hurry you don't have much time.

Sitting in defense command, your hands poised at the controls, you scan the sky for activity knowing that it will shortly erupt. "Armageddon" is about to begin . . . only YOU can save the last six cities.

If you're still in control of your senses you can try your hand at rescuing the miners trapped on Titan . . . easy you think! Ride your ship through the mini-meteor storm and pick up the men. But you didn't reckon on the corporation spaceships making this "Mission Impossible".

Book your test flight today. Buy any of Silversoft's new games and find out if you're really in control.

To: Silversoft Ltd. London House, 271/273 King St, London W6

Please send me

I enclose a cheque/postal order for:

Please debit my ACCESS No

Name

Address

All games run on any ZX-SPECTRUM and cost £5.95, write today for full details of our complete range of software.

Selected titles are available at W.H. SMITHS, BOOTS, JOHN MENZIES, and at all good computer stores.

ROCK FILE

The Rolling Stones Story — on disc

AT THE RECENT Personal Computer World exhibition two computer freaks met for the first time — 12-year-old Marcus Domleo and rock-and-roll superstar Bill Wyman of the Rolling Stones. Bill was presenting Marcus with £500 worth of software and hardware, first prize in the recent Virgin Games Gang competition.

The owner of two Apple computers and an extensive range of hardware, Bill has been using the new technology to catalogue the entire history of the Rolling Stones, a monumental task which will eventually be published. "It'll probably be my epitaph," he admits with a grin.



Top: Marcus, left, and Bill Wyman, centre, at the prize-giving.

Below: Bill and Marcus test one of the Virgin games.



THE INVASION OF THE ARGADIANS

SCRIPT:
LES COOKMAN
ART:
JOHN STOKES
LETTERS:
STEVE POTTER

IN A DESPERATE ATTEMPT TO SABOTAGE THE ALIEN INVASION OF EARTH, D'S GANG HAS TRACED THE MIND WARP ARCADE MACHINES BACK TO THEIR SOURCE...



... ONLY TO WALK STRAIGHT INTO THE HANDS OF THE ENEMY —



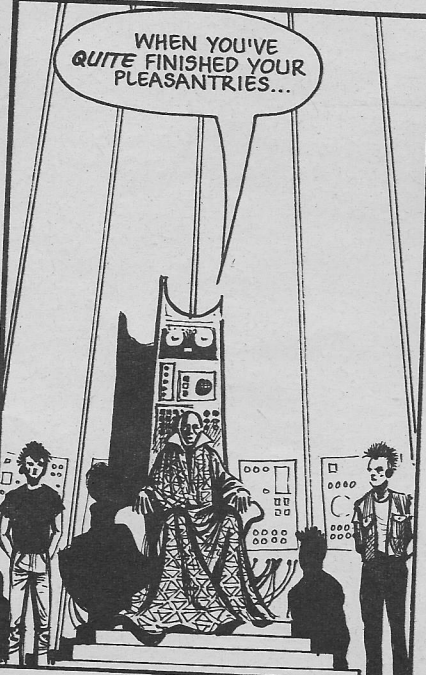
OH NO!
WHAT HAVE THEY DONE TO YOU?



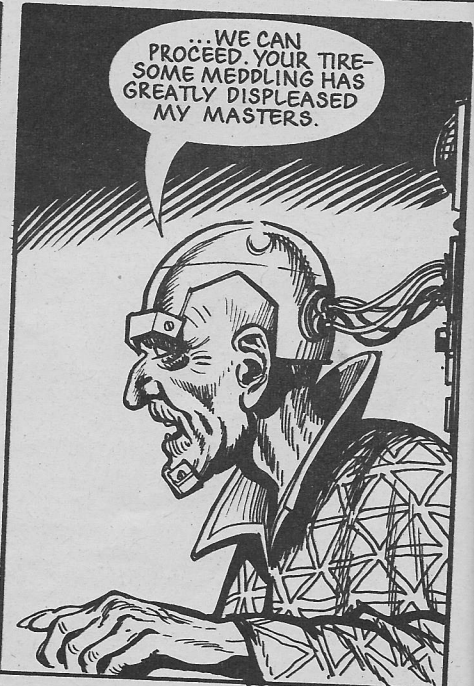
THEY WERE WAITING FOR US... IN AN ENORMOUS ARCADE ... WE WERE TRAPPED BY THE MIND WARP MACHINES...



... AND THEN THEY BROUGHT US HERE... WHERE ARE WE? HOW DID YOU GET HERE?



WHEN YOU'VE QUITE FINISHED YOUR PLEASANTRIES...



... WE CAN PROCEED. YOUR TIRE-SOME MEDDLING HAS GREATLY DISPLEASED MY MASTERS.

THEY ARE VEXED TO SEE HOW RESILIENT HUMANS CAN BE TO *MIND WARP*. IT IS FORTUNATE THAT THERE ARE ONLY A FEW WHO HAVE THE POWER TO RESIST—AS IT IS, YOUR INTERFERING HAS BROUGHT THE INVASION FORWARD. IT IS NOW ONLY *HOURS* AWAY.

HOWEVER, *MERE HUMANS* LIKE YOU COULD NEVER SUCCEED AGAINST THEIR AWESOME MIGHT WITHOUT HELP. WHERE IS YOUR LEADER?

I HAVEN'T GOT THE FAINTEST IDEA WHAT YOU'RE TALKING ABOUT. ALL I DID WAS PLAY THE MACHINES FOR A *DARE*.

AND ME MUM'LL KILL ME IF I'M LATE FOR SUPPER. I BET SHE'S ALREADY GOT THE COPS LOOKING FOR ME!

SHUT IT! THERE'S NO TIME FOR THESE STUPIDITIES. I'LL ASK YOU ONCE MORE. WHERE IS YOUR LEADER? IF YOU DON'T TELL ME...

MEANWHILE, THEIR LEADER *D* IS LOST...

I MUST FOCUS MY MIND TO DISCOVER WHERE THEY ARE...

D'S MIND GRASPS AND HOLDS AN IMAGE OF THE BUILDING WHERE HIS FRIENDS ARE HELD.

BUT HE IS BEGINNING TO WEAKEN...

THERE'S NO OTHER WAY... I'LL HAVE TO TAP MY *CEREBRO-MOTIVE FORCE* ONCE MORE... BUT THE POWER IS DRAINING FAST!

AT LAST THE FORCE BEGINS TO FUNCTION.



MADE IT— ONLY HOPE I'M IN TIME...

D MATERIALISES IN THE CONTROL CENTRE...



SEIZE HIM!



SO WEAK... CAN'T RESIST...



I MUST WARN YOU—I AM FROM THE FEDERATION OF GALACTIC INVESTIGATORS!!



AND YOU ARE ALL UNDER ARREST!!

OH, YES? AND WHO WILL PUT US UNDER LOCK AND KEY? YOU, MR. FED-TEC? OH, NO! YOU CANNOT WIN NOW— BUT— TO ADD A LITTLE AMUSEMENT TO YOUR FINAL HOURS, YOU CAN PLAY MY MASTERS...



... AT THEIR ULTIMATE GAME! THEY DESERVE A LITTLE DIVERSION BEFORE THEY FINALLY INVADE THIS PLANET WHICH THEY HAVE WORKED SO HARD TO PREPARE. THEY ARE WAITING, JUST OUTSIDE THE EARTH'S ATMOSPHERE, AND THEY HAVE PREPARED A GIGANTIC MIND WARP FOR YOU ALONE...



AND FOR ONCE STAR-FUZZ YOUR FRIENDS ARE POWERLESS TO HELP YOU!

CONTINUED NEXT PRINTOUT...

Second Edition Just Published

If you only buy ONE computing book

THIS IS THE CLASSIC!

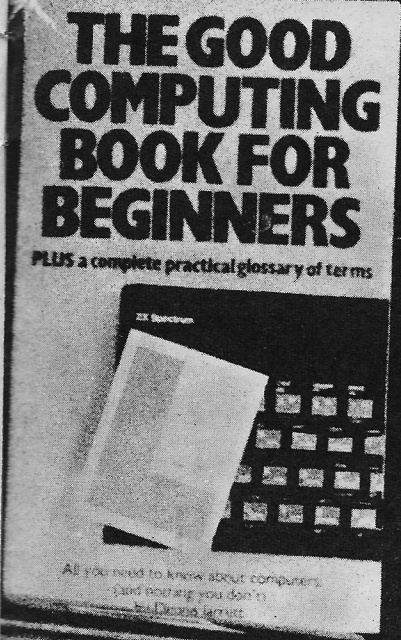
An entertaining, but **thorough** reference source with the most readable, comprehensive glossary you'll find anywhere. The Good Computing Book for Beginners is an essential A-Z of all the facts you need to know about computing — and none you don't!

Whether you're brand new to computing, or an old hand keen to stay ahead, you'll score by keeping this classic, top-selling book within reach to use again and again.

The author, Dennis Jarrett, is a successful journalist who was also founder editor of Which Computer? magazine — so his first edition quickly became a standard work. Now this new, substantially enlarged and revised edition covers the latest trends, terms and technology with the relevant facts — and **ONLY** the relevant facts — in **plain English**.

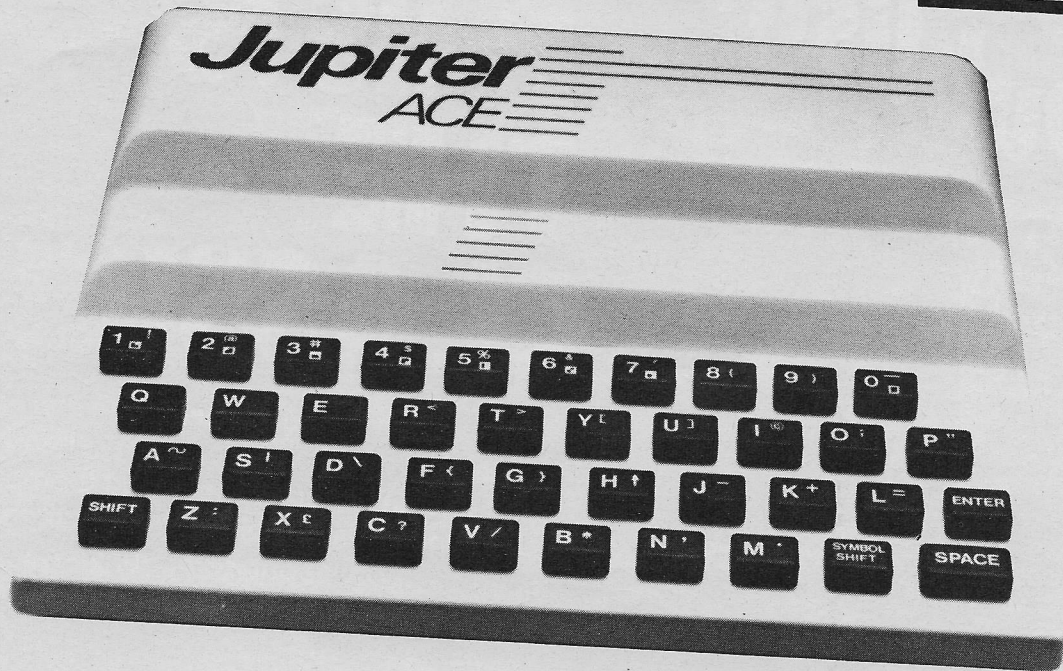
Here's another fact you'll find fascinating: it will only cost you £2.95!

Use the coupon below to get your copy right away — or buy it soon from your bookshop. It's the **one** book you'll turn to again and again.



Please send me _____ copy(ies) of The Good Computing Book for Beginners by Dennis Jarrett at £2.95 each plus 50p post and packing. I enclose a cheque for _____
 account Visa/Access/Diners/Amex number _____
 Signature _____ Name _____ Address _____
 Send to: ECC PUBLICATIONS LIMITED (please print clearly)
 196-200 Balls Pond Road
 London N1 4AQ

Jupiter Ace



**Jupiter Cantab,
22 Foxhollow,
Bar Hill,
Cambridge CB3 8EP**

Specifications

- Price
- Number sold
- How sold
- Processor
- Standard RAM
- Expansion RAM
- Basic + operating system
- Display
- Tape recorder
- Backing storage

Forth language
Black and white

£89.95
70,000 +
Assembled
Z-80A
3K
16K
8K
24 lines x 32 characters
Any

Software

Jupiter Cantab, 22 Fox Hollow, Bar Hill, Cambridge CB3 8EP.
Remsoft, 18 George Street, Brighton BN2 1RH.

Comments

The Ace is very poorly supported with software. That is not surprising as it uses the Forth language and not Basic. Most people regard Forth as difficult to program and it is closer to assembly language or machine code than Basic. It is also about 10 times as fast as Basic and because of that a Forth programmer should not have to resort to machine code to write software such as quick-action arcade games.

Program

The program below is useful when programming the Jupiter Ace. The program lists the current status of the first eleven values on the stack. The program also helps to demonstrate how the stack manipulation instructions such as DUP, DROP, SWAP, PICK and ROLL work.

```

: LP
  12 1
  DO
    I PICK . CR CR
  LOOP
;

: ST
  INVIS CLS 4 3 AT
  ." STACK TOP"
  SPACE LP VIS
;
    
```

LIFEBOAT



PICK UP survivors and first aid boxes from the sea, while avoiding wreckage and sharks. Score one point for each survivor rescued, and a bonus of 50 for each score completed. Collecting a box adds 500 points to your box counter. If the counter falls to 100 you will lose one of your three lives.

Lifeboat was written for the Spectrum by Michael Kingsley of Bow, Devon. Letters to be entered in graphics mode are underlined, and inverse spaces are represented in lines 6030 and 6040 as (isp).

```

20 GO SUB 9000
25 GO SUB 7000
27 LET hi=500
28 LET s=0: LET f=500: LET sc=
1: LET t=0
35 LET l=0
40 GO SUB 6000
50 LET x=15: LET y=10: LET a$=
"E"
51 LET w$="n"
60 PRINT INK 6;AT y,x; a$: PAUS
E 5
62 IF w$="n" THEN LET x=x-1: P
RINT INK 1;AT y,x+1;" "
63 IF w$="m" THEN LET x=x+1: P
RINT INK 1;AT y,x-1;" "
64 IF w$="a" THEN LET y=y-1: P
RINT INK 1;AT y+1,x;" "
65 IF w$="z" THEN LET y=y+1: P
RINT INK 1;AT y-1,x;" "
66 IF INKEY$="n" THEN LET x=x-
1: PRINT INK 1;AT y,x+1;" ": LET
w$="n": LET a$="E"
67 IF INKEY$="m" THEN LET x=x+
1: PRINT INK 1;AT y,x-1;" ": LET
w$="m": LET a$="E"
68 IF INKEY$="a" THEN LET y=y-
1: PRINT INK 1;AT y+1,x;" ": LET
w$="a": LET a$="F"
69 IF INKEY$="z" THEN LET y=y+
1: PRINT INK 1;AT y-1,x;" ": LET
w$="z": LET a$="F"
105 IF x<2 THEN LET x=2
106 IF x>29 THEN LET x=29
107 IF y<5 THEN LET y=5
108 IF y>19 THEN LET y=19
110 IF ATTR (y,x)=11 THEN GO SU
B 3000
120 IF ATTR (y,x)=10 THEN GO SU
B 3100

```

```

130 IF ATTR (y,x)=8 THEN GO TO
3200
140 IF ATTR (y,x)=12 THEN GO TO
3200
150 PRINT INK 7;AT 1,7; s;AT 1,2
8;hi;AT 1,15;f
160 LET f=f-1: IF f=101 THEN GO
SUB 3200
170 IF t=(9+sc) THEN GO TO 5000
180 GO TO 60
3000 BEEP .1,9: LET s=s+1: LET t
=t+1: RETURN
3100 BEEP .1,6: LET f=f+100: LET
t=t+1: IF f>900 THEN LET f=900
3110 RETURN
3200 FOR x=10 TO 0 STEP -1: BEEP
.15,x: NEXT x: LET f=500: LET l
=l-1
3201 IF l=0 THEN GO SUB 4000
3210 IF l=0 THEN GO TO 28
3220 GO TO 50
4000 REM £GAME OVER£
4001 CLS: PRINT INK 0;AT 12,11;
FLASH 1;"GAME OVER": FLASH 0: P
RINT INK 7;AT 19,6;"Press any ke
y to play": PAUSE 0: IF s>hi THE
N LET hi=s
4010 CLS: RETURN
5000 CLS: LET p=40+(sc*10): LET
s=s+p: PRINT INK 4;AT 5,11;"BON
US ";p; INK 6;AT 10,7;"SCREEN ";
sc;" COMPLETED": LET sc=sc+1: FO
R x=1 TO 20 STEP 2: BEEP .15,x:
NEXT x: PAUSE 150: LET t=0: GO T
O 40
6000 REM £RESET UP SCREEN£
6001 BORDER 5: PAPER 1: CLS
6010 FOR x=0 TO 31: PRINT INK 7;
AT 2,x;"_": NEXT x

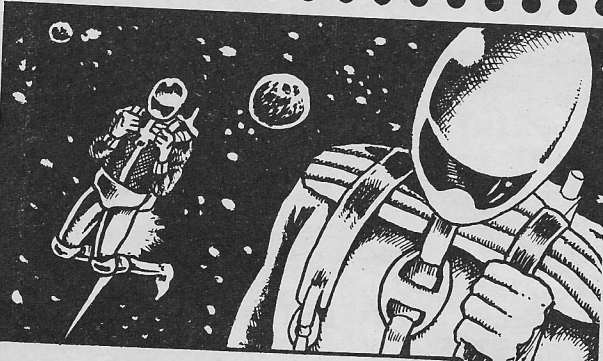
```

continued overleaf

continued from previous page

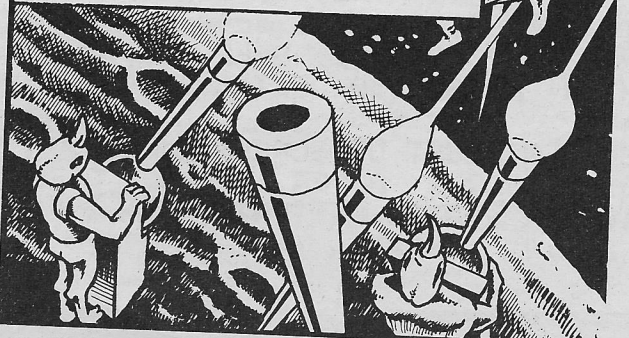
```
6020 PRINT AT 1,1; INK 7;"SCORE"  
JAT 1,22;"HIGH"JAT 1,12; INK 2)"  
B"  
6030 FOR x=1 TO 30: PRINT INK 1)  
AT 4,x);"(isp)"JAT 20,x);"(isp)"  
NEXT x  
6040 FOR x=4 TO 20: PRINT INK 1)  
AT x,1);"(isp)"JAT x,30);"(isp)"  
NEXT x  
6045 FOR z=1 TO 4  
6046 LET m=5+3*zc  
6050 FOR y=1 TO m  
6060 LET a=(RND*30)-1: IF a<3 TH  
EN GO TO 6060  
6070 LET b=INT (RND*15)+4: IF b=  
4 THEN GO TO 6070  
6075 IF z=1 THEN LET a=3  
6076 IF z=2 THEN LET a=2  
6077 IF z=3 THEN LET a=0
```

```
6070 IF z=4 THEN LET a=4  
6080 PRINT AT b,a; INK 9;CHR# (z  
+149); BEEP .05,8  
6090 NEXT y  
6095 NEXT z  
6100 RETURN  
7000 REM ##INTRODUCTION##  
7001 BORDER 5: PAPER 0: CLS : IN  
K 5: PLOT 80,81: DRAW -40,31: DR  
AW 8,40,-PI/2: DRAW 96,-72  
7002 INK 2: PLOT 112,104: DRAW 1  
6,16: DRAW 60,-40: PLOT 165,96:  
DRAW 40,16: DRAW 8,-16: DRAW -8,  
-16: INK 1: PLOT 0,60: DRAW 255,  
0  
7003 PRINT INK 7;AT 0,11;"LIFE B  
OAT"; INK 6;AT 1,6;"By Michael K  
ingsley"  
7010 PRINT INK 2; FLASH 1;AT 13,
```



HUMAN INVADERS

AT LAST — the Revenge of the Aliens. In this game for the TI99/4A you play the part of the alien, endeavouring to prevent the invasion of your planet by the evil empire-building humans. Key A moves the alien to the left and key D moves it to the right. Press the space bar to fire. Human Invaders was submitted by Paul Leathley of Fallowfield, Manchester.



```
100 CALL CLEAR  
110 PRINT "  
120 PRINT " *****  
130 PRINT " * HUMAN INVADER *  
140 PRINT " *****  
140 FOR K=1 TO 9  
150 PRINT  
160 NEXT K  
180 FOR D=1 TO 750  
190 NEXT D  
200 HI=0  
210 V=0  
220 CALL CLEAR  
230 SC=0  
240 X=10  
250 CALL CHAR(128,"18187EBDBD242466")  
260 CALL COLOR(13,11,2)  
270 CALL CHAR(145,"00081C1C1C2A2A22")  
280 CALL COLOR(15,6,2)  
290 CALL CHAR(137,"22954AA55AB55A24")  
300 CALL COLOR(14,9,2)  
310 FOR G=1 TO 12  
320 CALL COLOR(6,16,2)  
330 NEXT G  
340 CALL SCREEN(2)  
350 FOR G=1 TO 35  
360 RANDOMIZE  
370 A=INT(RND*20)+1  
380 B=INT(RND*32)+1  
390 CALL HCHAR(A,B,46)  
400 NEXT G  
410 FOR I=1 TO 14 STEP 2  
420 FOR J=6 TO 26 STEP 2  
430 CALL HCHAR(I,J,128)  
440 NEXT J  
450 NEXT I  
460 Z=55  
470 GOTO 900  
480 CALL HCHAR(22,X,145)
```

```

13) "S O S"; FLASH 0; INK 5; AT 15
,4) "Save the people, avoid the
sharks and wrecks. Pick up
First-aid boxes to stay alive."
7011 PRINT INK 4; AT 19,3; "Press
any key to continue"
7020 PAUSE 0
7030 PAPER 7; CLS; PRINT INK 1;
AT 3,7; ".....You"; AT
T 5,7; ".....Survivor"; AT
7,7; ".....First-aid box"; AT
9,7; ".....Shark"; AT 1
1,7; ".....Wreckage"
7031 PRINT INK 6; AT 3,6; "E"; AT 5
,6; INK 3; "A"; AT 7,6; INK 2; "B";
AT 9,6; INK 0; "C"; AT 11,6; INK 4
;"D"
7032 PRINT INK 0; AT 14,11; "Left.
..'N'"; AT 15,11; "Right..'M'"; AT

```

```

16,11; "UP.....'A'"; AT 17,11; "Dow
n..'Z'"
7040 PRINT INK 1; AT 19,6; "Press
any key to start"
7050 PAUSE 0
7060 RETURN
9000 REM EAUSER-GRAPHICSEE
9001 FOR x=1 TO 6
9010 FOR y=0 TO 7
9020 READ a; POKE USR CHR# (64+x
)+y,a; NEXT y
9040 NEXT x
9050 DATA 56,56,106,146,106,124,
56,254,0,0,124,108,68,108,124,0,
7,14,30,60,60,124,254,255,0,64,6
4,96,48,24,8,12,0,126,195,129,12
9,195,126,0,60,102,66,66,66,66,1
02,60
9060 RETURN

```

```

490 CALL KEY(0,K,S)
500 IF KC>65 THEN 550
510 X=X-1
520 IF XC2 THEN 610
530 CALL HCHAR(22,X+1,32)
540 GOTO 480
550 IF KC>68 THEN 600
560 X=X+1
570 IF X>30 THEN 630
580 CALL HCHAR(22,X-1,32)
590 GOTO 480
600 IF K=32 THEN 650 ELSE 480
610 X=2
620 GOTO 480
630 X=30
640 GOTO 480
650 CALL SOUND(300,-5,5)
660 F=20
670 F=INT(RND*5)+11
680 CALL HCHAR(F,X,42)
690 IF F<=2 THEN 880
700 F=F-2
710 CALL HCHAR(F+2,X,32)
720 CALL GCHAR(F,X,Y)
730 IF Y=128 THEN 750
740 GOTO 680
750 CALL HCHAR(F,X,137)
760 CALL SOUND(150,523,5)
770 FOR D=1 TO 15
780 NEXT D
790 CALL HCHAR(F,X,32)
800 SC=SC+1
810 Z=Z-1
820 IF Z=0 THEN 410
830 M#=STR$(SC)
840 FOR I=1 TO LEN(M#)
850 CALL HCHAR(3,I+15,
ASC(SEG$(M#,I,1)))
860 NEXT I
870 GOTO 470
880 CALL HCHAR(F,X,32)
890 GOTO 470
900 B=16
910 A=INT(RND*21)+6
920 CALL HCHAR(B,A,33)
930 B=B+2
940 CALL HCHAR(B-2,A,32)
950 IF B=22 THEN 970
960 GOTO 920
970 CALL GCHAR(22,A,C)
980 IF C=145 THEN 1010
990 CALL HCHAR(22,A,32)
1000 GOTO 490
1010 CALL SOUND(1000,-8,10)
1020 CALL SOUND(700,-5,0)
1030 CALL HCHAR(22,X,137)
1040 V=V+1
1050 IF V=3 THEN 1070
1060 GOTO 480
1070 CALL SOUND(2000,-5,0)
1080 M#="" @@@@GAME OVER@@@
1090 FOR I=1 TO LEN(M#)
1100 CALL HCHAR(6,1,ASC(SEG$(M#,I,1)))
1110 NEXT I
1120 PRINT " YOU SCORED";SC;"POINTS"
1130 PRINT
1140 IF SC>HI THEN 1200
1150 PRINT " HI SCORE=";HI;"BY";B#
1160 PRINT
1170 PRINT " PRESS ANY KEY TO PLAY AGAIN"
1180 CALL KEY(0,K,S)
1190 IF S=0 THEN 1180 ELSE 210
1200 PRINT " YOU HAVE BEATEN THE HI SCORE"
1210 PRINT
1220 INPUT " YOUR INITIALS ?"-B#
1230 HI=SC
1240 GOTO 1160

```



HI! I'M BRAINY and I really rate computers. I'm in *Load Runner* every issue so write to me at 196-200 Balls Pond Road, London N1 4AQ and I'll do my best to answer any questions you have.

Remember, Brainy's the name and, by the way, I will pay £1 to anyone whose name is mentioned. Write away!

BRAINY'S BRAINBOX

Battle of the sexes

IN THE STORY School for Software in printout No 7, there were boys being jealous about a girl who was interested in computers. That is what happens at my school. What can we girls do to prove we are as good as boys with computers?

Jennifer Lane, Bristol.

THE ONLY SOLUTION of which I can think is to try to ignore the fact. If you are sufficiently interested, you will find that once you and a friend have started and have been seen more often in the computer room, it will not matter.

If you are consistent enough and show that teasing does not concern you, you will relax more and be able to show you are just as capable as the boys. Remember that the author of the best machine code programming book for the ZX-81 was a woman and many good programs are designed by females.

BBC CHAIN of command

MY FRIEND has a BBC computer. She says that to get a program to RUN after LOADING, you type CHAIN"". That

does not work on my Spectrum. Why not?

Graham Bradley, Plymouth.

THE TROUBLE is that the Spectrum has a different Basic programming language from the BBC micro. With most SAVED games as soon as it has been LOADED it runs. The BBC CHAIN makes the program run from the first line when it is loaded. So with the Spectrum the programmer decides if it should run automatically, while with the BBC it is the user who decides.

Discovering Spectrum quirks

WHILE PASSING the time with my Spectrum I found that if I RUN: '10 PRINT "Eric" 20 GOTO 10,' the computer scrolls my name, but if I press caps shift and symbol shift, the message RUN E appears. Then if I press ENTER a number of words fill the screen and after two scrollings I get the statement: K Invalid colour, 10:1. Could you tell me what it means?

Eric Llewellyn, Newport.

THIS IS an interesting 'quirk' in the Spectrum ROM. The E stands for extended mode which enables you to get at the green and red commands round the keys. It also lets you colour words and sentences separately.

That is probably why the message 'Invalid colour' is printed. I cannot understand why it prints RUN E. If you are deeply interested in these 'quirks' of the Spectrum ROM, refer to Ian Logan's book *Understanding your Spectrum*.

* * *

Starring in motion pictures

HOW CAN I make graphics pictures I have programmed into my computer move around the screen without using a number of PRINT AT statements?

John Denning, London N7.

IT SOUNDS as if you have a Sinclair micro but the answer applies to most machines, though some use @ or TAB instead of AT. The best way of which I know is instead of using numbers after the AT, use variables for the horizontal or vertical — or both — positions, depending on which direction you want your picture moving. If you want it to move left or right, change the horizontal variable value in a loop.

If you want it to move up or down, use the loop to change the vertical one. If you want it to move diagonally, change both. These lines will move * left:

```
FOR h=20 TO 10 STEP -1
PRINT AT 10, h; * _
NEXT h
```

These move it up:

```
FOR v=20 TO 10 STEP -1
PRINT AT v, 10; " *"; AT v+1, 10;
" _ "
```

NEXT v

These move it down and to the right:

```
FOR p=10 TO 20
PRINT AT p, p; " *"; AT p-1, p;
" _ "
```

NEXT p

All those spaces I have marked with _ are to wipe the star from its last position. That should be enough to get you STARTed.

* * *

SEE BRAINY BLUSH. Things move fast in this world. Since I said you could not make an Apple sing and implied that was true for all micros, I have seen an American magazine featuring Voice Box II for the Atari 48K disc machine. It is a speech and singing synthesiser, with a face on-screen with synchronised lips. It costs \$169.

TRUMBULL'S WORLD

IN THE LAST STAGE OF JAN AND MARC'S QUEST THROUGH THE COMPUTER ADVENTURE WORLD CREATED BY THEIR FATHER, MARC HAS BEEN CAPTURED. EVENTS DRAW SWIFTLY TO A CLOSE.



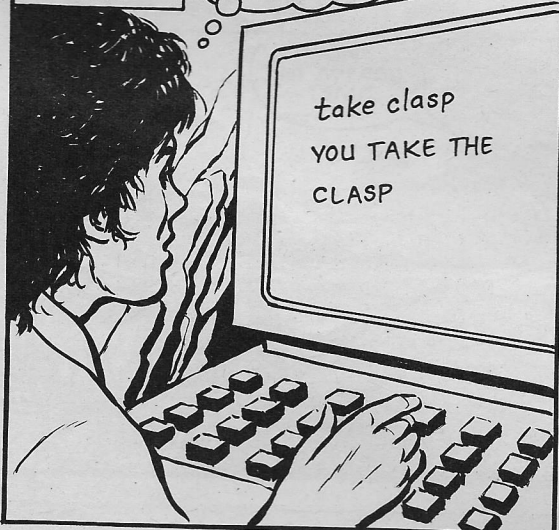
AS THE CROWD WATCHES ON...



JAN KNOWS SHE IS GIVING SIMIAN HIS VICTORY.

IT'S WRONG. BUT WHAT ELSE CAN I DO?

take clasp
YOU TAKE THE
CLASP



BACK ON THE SHORE. JAN BEGINS THE LONG ASCENT...

THE LAST LAP. THEN I CAN REST.





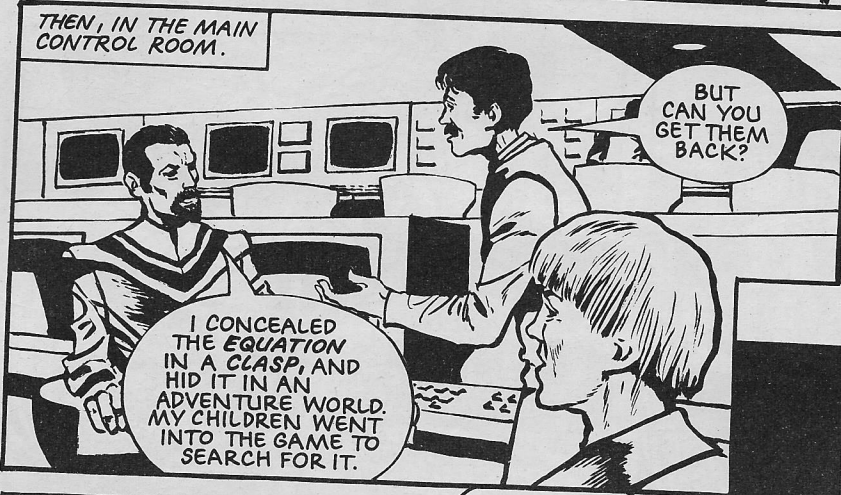
BUT OUTSIDE THE GAME THERE IS CELEBRATION.

PROGRAMMER TRUMBULL IS FINALLY RELEASED.

GATES



BUT IMPRISONMENT HAS TAKEN ITS TOLL.



THEN, IN THE MAIN CONTROL ROOM.

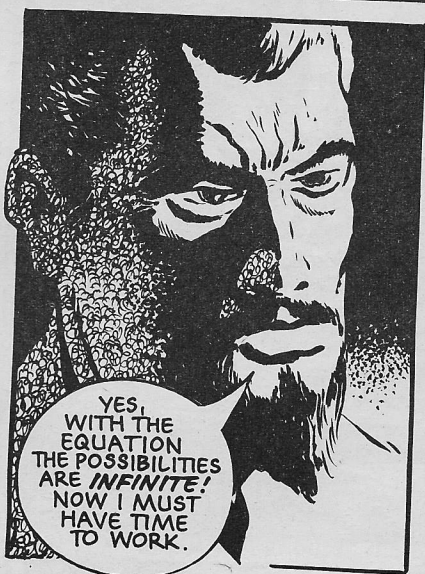
BUT CAN YOU GET THEM BACK?

I CONCEALED THE EQUATION IN A CLASP, AND HID IT IN AN ADVENTURE WORLD. MY CHILDREN WENT INTO THE GAME TO SEARCH FOR IT.

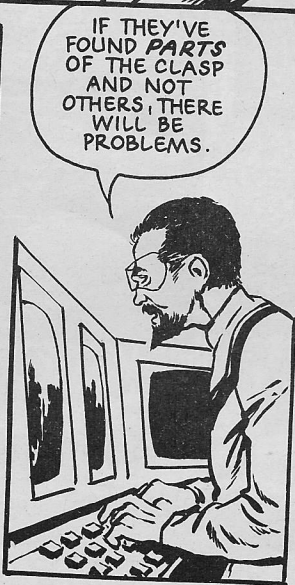


I THINK SO, AND RETRIEVE THE EQUATION.

AND IT WILL BE OVER. WE WILL BE FREE? FREE TO EXPLORE NEW GALAXIES?



YES, WITH THE EQUATION THE POSSIBILITIES ARE INFINITE! NOW I MUST HAVE TIME TO WORK.



IF THEY'VE FOUND PARTS OF THE CLASP AND NOT OTHERS, THERE WILL BE PROBLEMS.



PROBLEMS TRUMBULL CAN'T EVEN IMAGINE...

QUICKLY. GIVE IT TO ME!



AS SIMIAN TAKES THE CLASP SEGMENT...

NNOO!!

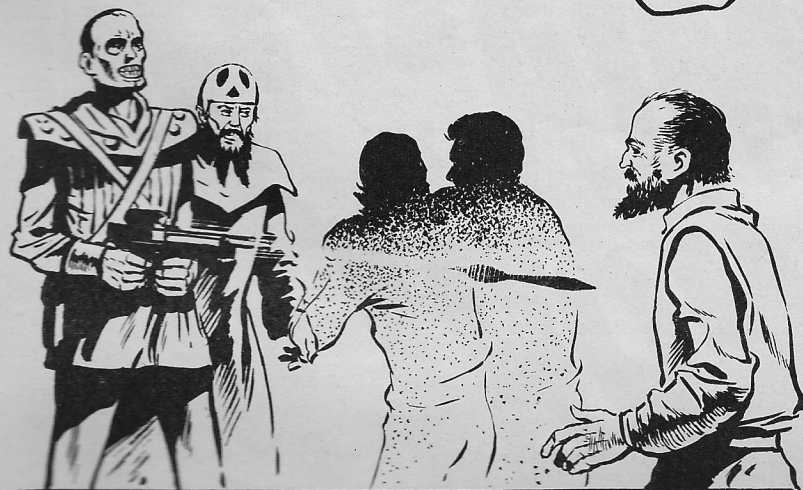


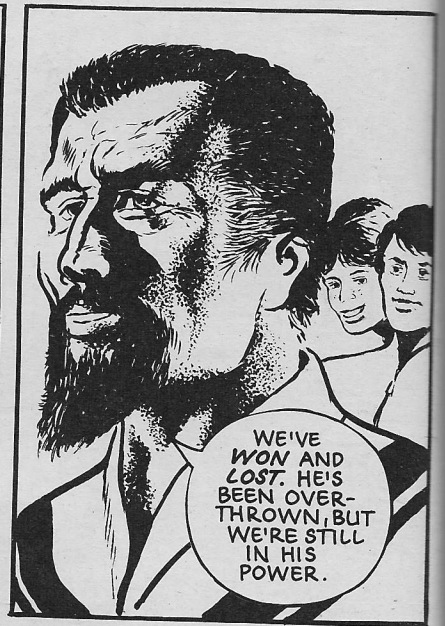
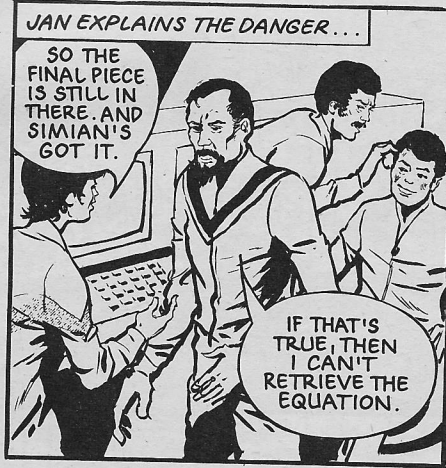
PRAY GOD I'M IN TIME!

TRUMBULL'S WORLD



TWO LIVES SPARED...





SIMIAN AND THE HUNTER EXULT WITH UNHOLY JOY!



Coming soon:
THE SAVAGE,
SINISTER,

SIMIAN'S WORLD



More WINNING GAMES from LIVERSOFT

LUNAR RESCUE (48K SPECTRUM)

A team of research scientists are trapped on the moon and you have to pilot the rescue pod from the mother ship and ferry them back safely. But you have only space for one scientist at a time. 100% M/C action with super smooth HI-RES GRAPHICS AND JOYSTICK OPTION.

LIBERATOR (16K/48K SPECTRUM)

This game tests your aim and reactions as you command a gunsight on a homeward bound space freighter. Your cargo is the royal treasures of the empire and many people want them. A machine code presentation that should have you hooked.

THUNDERHAWK (48K SPECTRUM)

Based on the popular arcade game Pheonix. This 100% full colour epic pitches you against the evil Albertrons who are set to destroy your race, five levels of fast action bring you to the command centre of battle fleet, can you finish the job. WITH JOYSTICK OPTION.

GOLF (48K SPECTRUM)

Using M/C graphic routines, a game to absorb the keen novice and the scratch player. Play on a 9 or 18 hole course, with full selection of clubs. Along the greens and fairways hours of addictive sport can be had.

PICTURE PUZZLE (DRAGON 32)

With HI RES graphics and 100% M/C. You are set the problem of putting the picture back together. Test your skill against the dragon 32 computer. A game guaranteed to hold you spell bound for hours.

ANDROID INVADERS (DRAGON 32)

In a change of tactics the beings beyond the stars have developed an android of human form to do their dirty work. And with the aid of sensor jamming they may prove formidable. Using full colour, M/C, hi-re graphics this game can offer up to 21 levels of combat.

VOYAGER (VIC 20 8 OR 16K)

The mission is simple, but its completion is far from being so. As captain of starship you have all the best facilities at your disposal. Unfortunately the klingons oppose you. A great M/C version of this classic computer game.

SPHINX (VIC 20 8 OR 16K)

A riveting, full colour graphic adventure. That pits you against the spells and guardians of the tomb. In your quest to uncover the treasure of the pharaohs. This game will have you enthralled.

BIRD OF PREY (BASIC VIC 20)

Evil baron von fritz is out to kill his cousin, the much loved Prince Rupert. The Baron intends to throw the prince from his plane into the sacred fire pit. But you the eagle of the north will make every endeavour to save your friend Prince Rupert. With colour, sound, this M/C game is a must.

ALSO AVAILABLE:

Demon Driver Basic VIC20 — £5.95
Lunar Rescue Basic VIC20 — £5.95
Space Assault 3 or 8 VIC20 — £5.95
Apple Bug/Crazy Climber Basic VIC 20 — £5.95

Nuclear Attack/Grand Prix Basic VIC20 — £5.95
Hearts & Diamonds/Hi-Lo Basic VIC20 — £5.95
Machine Code Monitor VIC20—£14.95

Hangman/Super Docker ZX81-16K £4.95
Bouncing Gorillas ZX81-16K—£4.95



- VIC-20 Machine Code Monitor @ £14.95 each
- Lunar Rescue @ £5.95 each
- Demon Driver @ £5.95 each
- Applebug/Crazy Climber (2 pack) @ £5.95 each
- Nuclear Attack/Grand Prix (2 pack) @ £5.95 each
- Hearts & Diamonds/Hi-Lo (2 pack) @ £5.95 each
- Space Assault @ £5.95 each-For 3K & 8K VIC-20

For any VIC-20

Please debit my Access/Barclaycard (delete as necessary)

Card

I enclose Cheque/PO for £

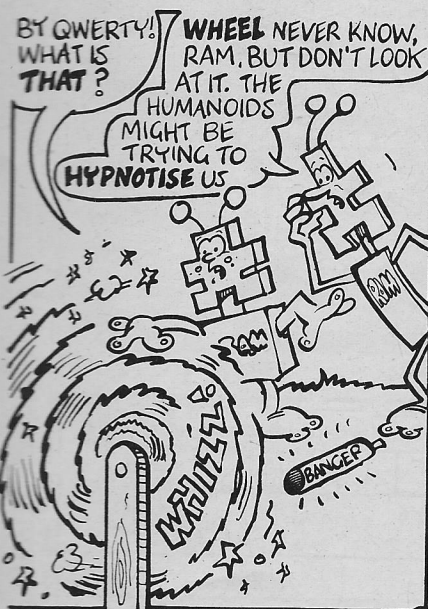
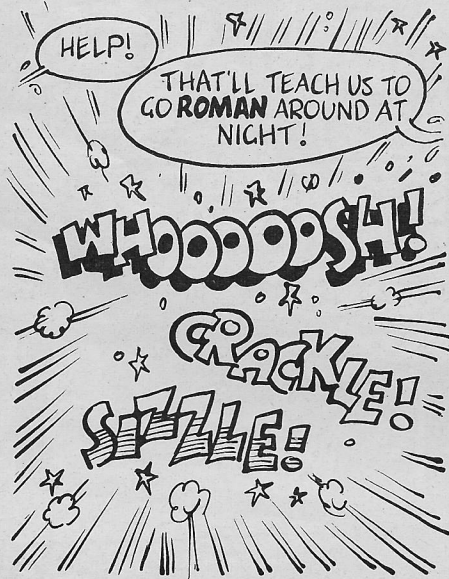
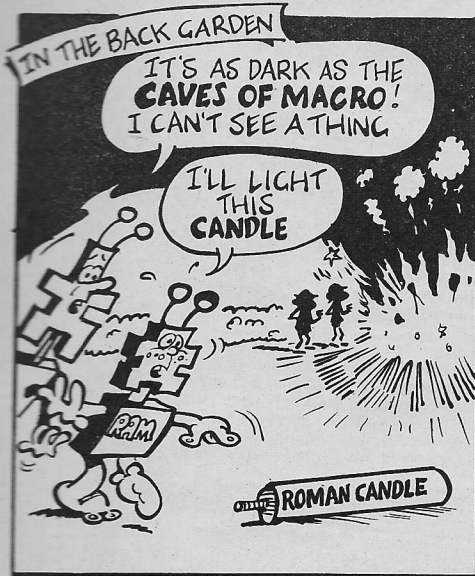
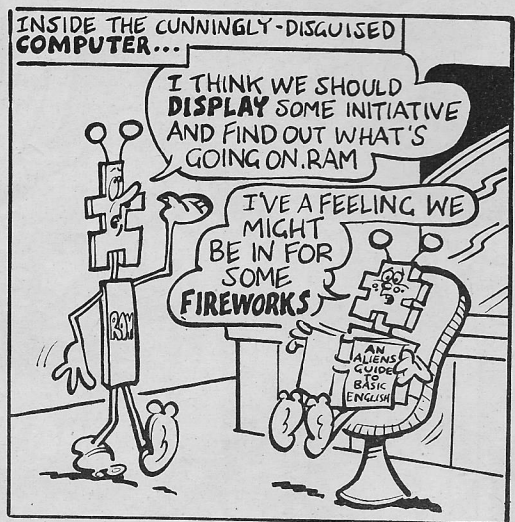
Name

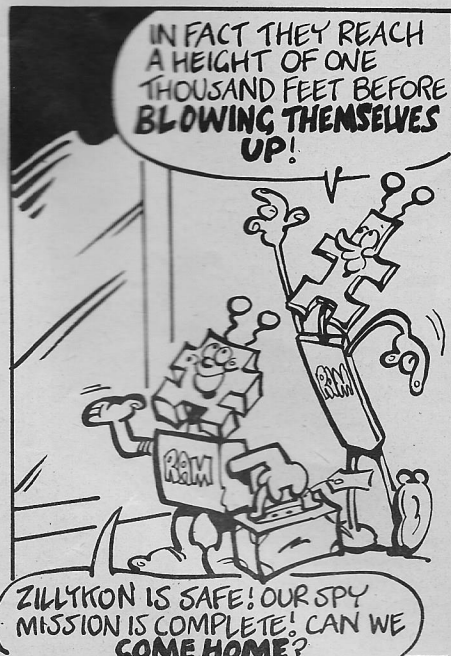
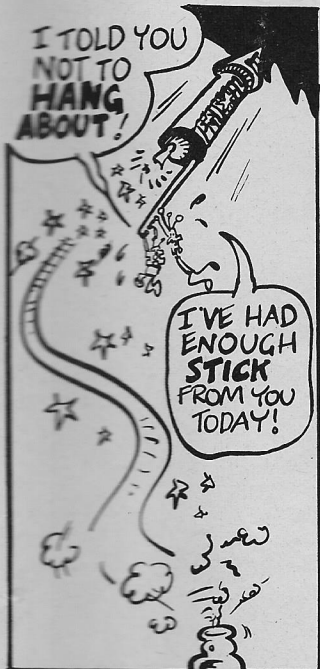
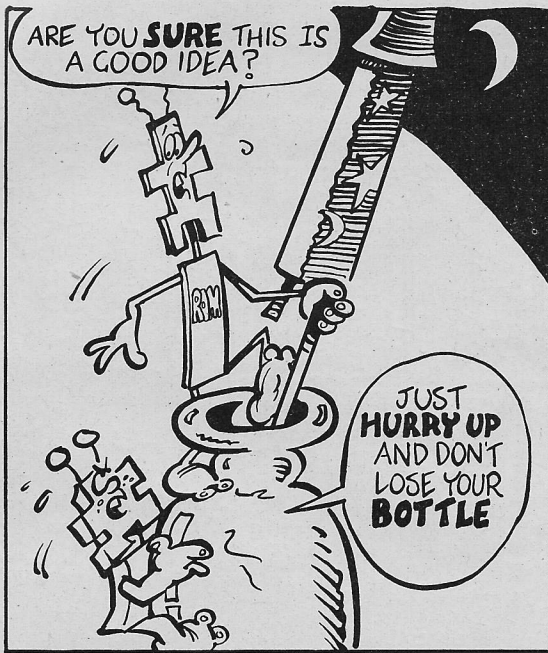
Address

Free Postage mainland UK only

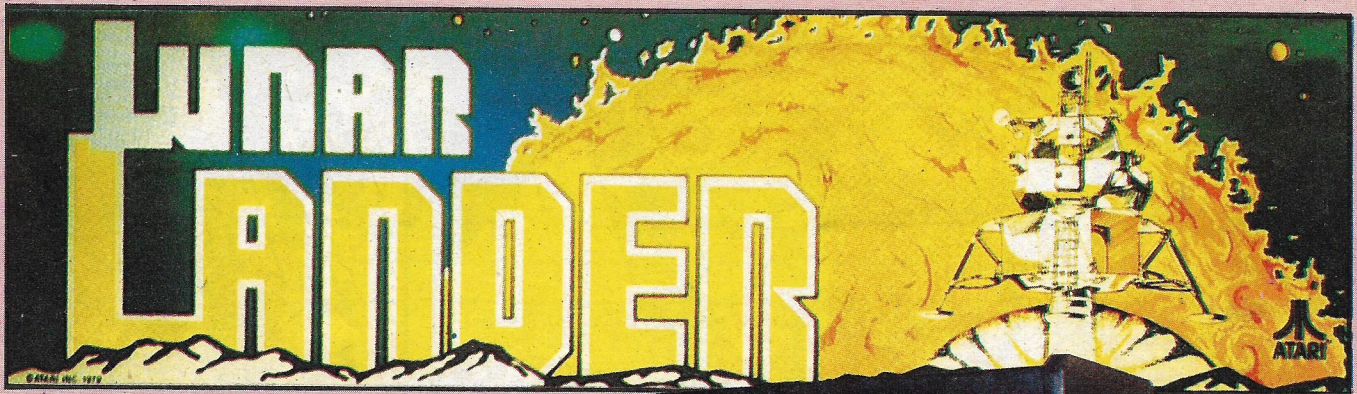
TVC1

THE ADVENTURES OF ROM AND RAM





ANDY ROBB - 0



MOVING FROM the usual Space War arcade game, Lunar Lander gave us the first simulated spaceship landing. Taken into the arcades by Atari, the game never became a huge success like its predecessors, Space Invaders, Galaxians and the rest, although plenty of skill was required in operating the spaceship.

The graphics are very similar to those of Asteroids with the details being white on a black background. The rocky terrain is a white outline running across the screen, with flat landing pads marked at various intervals; they are given values ranging from 2x to 5x.

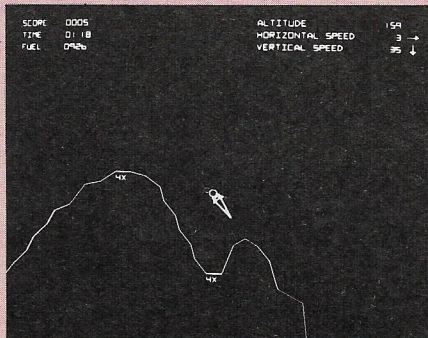
The player controls a small Lunar Module drifting high above the surface of a planet and, using an aircraft-type throttle and two rotate buttons, the player has to manoeuvre the craft on to one of the landing pads. That is not as easy as it may sound but the player is helped in his descent. As the module nears the landing pad the screen switches to a close-up of the touchdown.

If things begin to look difficult and a crash seems imminent, there is an abort button for you to use at the last moment and it will thrust you back into space for a second run. There are various gauges at the top of the screen informing you of altitude, speed and fuel but the only one you need to keep an eye on is the fuel. There are several skill levels, so if you think you are a budding Neil Armstrong, practise and set your level high.

Software

THERE ARE very few Lunar Lander computer games. Adventure International produces a Lunar Lander for a 24K Atari and also one for the Tandy TRS-80.

Games based on Lunar Lander are available for one or two of the more popular computers.



Providing processor power to The Controller in publishing Load Runner were Bill Scolding (editor), and June Mortimer (administration). Chris Winch, Harold Mayes MBE, Terry Cartwright and Richard Hease linked into the system. The corporate might of ECC Publications of 196-200 Balls Pond Road, London N1 4AQ was utilised continually. Printout by Cradley Print PLC, Warley, West Midlands. Distributed by Spotlight Magazine Distribution Limited, 01-607 6411. ISSN 0264-8369. © 1983 Load Runner.